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● Research Report ●

A STUDY OF THE WORLD WAR II NAVY CAREERS OF
ILLITERATES SENT THROUGH LITERACY TRAINING

by

Elizabeth P. Hagen and
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APRIL 1953

Prepared under Contract Nonr-644(00)

Classification and Survey Research Branch
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E.P.H.

R.L.T.

Abstract

A group of 1026 illiterates who entered Camp Peary during August and September 1944 was compared with a group of 1021 control cases who entered the Navy at the same time and from the same parts of the country as the illiterates. Comparisons were also made with a third group of 999 men of marginal ability (GCT 35 or below) who did not receive the special training at Camp Peary. The three groups are not perfectly matched on such factors as age and marital status, so that comparisons may be influenced in some degree by differences in these factors.

The basic data were personnel and medical records abstracted from the files of the Naval Records Management Center, Garden City, L.I. Data of two types were abstracted:

- (1) background facts which were considered to be possible predictors of success in the Navy, and
- (2) facts about the man's Navy career which were considered to be indications of his success in his Navy duty assignments.

The first analyses undertaken were comparisons of the illiterate, control, and marginal groups. When the groups are compared on factors relating to duty in the Navy, a number of differences are found. The illiterates differed from the control group in the following ways:

- (1) The illiterates were much more likely than were the control cases to be assigned to the CBs, and were less likely to be assigned to U.S. permanent party or to auxiliary ships.
- (2) The illiterates tended to receive a lower average proficiency in rate. Only 50% received an average of 3.5 or over, as compared with 73% in the control group.
- (3) The illiterates received fewer promotions. Only 15% made petty officer, as compared with 37% in the control group.
- (4) The illiterates received more disciplinary actions. In the illiterate group, 23% had records of some type of disciplinary action, as compared with 11% of the control group. General courts martial were ten times as frequent in the illiterate group.
- (5) The illiterates more frequently lost time due to misconduct. The percentages losing time were 20 for the illiterates and 7 for the control groups.
- (6) The illiterates less frequently received an honorable discharge- 83% vs. 88%.
- (7) The illiterates were somewhat more likely to receive a medical survey, and were the only group to be surveyed for inability to learn. The percent surveyed is 19% and 15% in the two groups.
- (8) The illiterates were somewhat more likely to incur a venereal infection - 5% vs. 3%.

(9) The illiterates were slightly more likely to generate a Veterans Administration disability claim - 11% vs. 9%.

In some respects, however, there seems to be little or no differentiation between the two groups. The illiterates show as much-possibly more-sea and overseas duty as the control groups. The total length of service for the illiterates averages only slightly less than for the control group, and the longest time spent at a duty station was very similar for the two groups. Hospitalizations were about the same in the records of both groups.

With respect to every factor studied, many or most of the illiterates appeared to be making an acceptable adjustment to their Navy assignment.

When background factors and test scores are studied in relation to the illiterates' ability to complete successfully the program of training at Camp Peary, it is found that a substantial prediction can be achieved from a number of measures of educational background, civilian occupational experience, literacy, and non-verbal intelligence. These same factors predict success in subsequent Navy assignments, though much less effectively. Using these predictors, it should be possible to select a group of illiterates who would have relatively high probability of completing training and better than average prospects for success in the Navy.

CHAPTER 1

ORIENTATION

Military personnel operations always face a compromise between two objectives. One is to have each man highly competent in the specialty for which he has been particularly trained. The other is to have a maximum of interchangeability of men, so that any man can take over the functions of any other in the event of combat casualty on the one hand or of shifting personnel needs on the other. Though these two objectives are in some respects in conflict, they both establish as the ideal for the recruit a fully competent, fully qualified man. An individual who is limited in any way with respect to what he is physically and mentally able to do or learn to do is at best an inconvenience and at worst a complete liability to the military personnel officer.

With a small military establishment, it may be possible to approach the ideal of having each recruit fully qualified to be trained for any type of military duty. But as military manpower demands become relatively great - as they were during World War II, and as they are at the present time of international tension - there are not enough fully qualified men to go around. It then becomes necessary to accept and use various types of individuals who are in some respect or degree limited in the functions which they can perform within the Military Establishment. Three major supplementary sources of personnel may be recognized which differ radically in nature but have in common the fact that they are not completely interchangeable in the types of military duties for which they may be trained and in which they may be used. The groups are (1) women, (2) men with some type or degree of physical handicap, and (3) individuals of limited intellectual ability or educational background - "illiterates." All three are relied upon more and more heavily as the shortage of manpower for military service becomes more acute. It is with the third group, the "illiterates", that this report is concerned.

Individuals of marginal ability and literacy are currently being accepted into the Navy, as well as the other branches of the Military Establishment. It therefore becomes important to have information about how well individuals of this type adjust to the demands of Navy duty, what kinds of assignments they are successful in, and what factors in their background are indications of probable success. The present study was undertaken to provide information on these points.

What is an illiterate? By dictionary definition it is "a person unable to read or write." But by what operation do we define a person as an illiterate? Perhaps the simplest is just to ask - him, some member of his family, or someone who knows him well - whether he can read or write. Essentially this approach was used in the 1930 and earlier Decennial Censuses.

But this type of testimony is of questionable dependability. Furthermore, being able to read or write is a matter of degree - not an all-or-none matter. In an attempt to recognize this, the 1940 Census gathered information on highest school grade reached. An individual was defined as an illiterate if he or she had not finished the fourth grade school. By this definition, 1940 Census figures indicate that 249,160 (3%) of native born white males between the ages of 18 and 24 and 372,140 (4%) of those between 25 and 34 at the time of the Census were illiterate.

It must be recognized, however, that completion of a level of schooling is an indication of exposure to, rather than a guarantee of mastery of, school skills. Furthermore, many adults whose life activities have made little demand upon academic skills have forgotten much that they learned in school. Literacy is best defined as performance - that is, performing upon a test of reading at least as well as the average child at a specified educational level. Ability to read (and perhaps carry out some other academic skills) as well as the average child who has completed the fourth grade presents one set of operations for defining literacy which has been rather widely accepted. No adequate figures are available from which to estimate the incidence of illiteracy by this definition, but it would almost certainly have been greater than the figures given in the previous paragraph.

During the latter part of World War II, illiteracy was defined by test procedures of the sort indicated above. The test in use was the Qualification Test. This test was administered at the Induction Station. A score of 9 or above on this test qualified the inductee as possessing a minimum standard of literacy. This score corresponded to a grade level of 4. At the present time, test procedures are again the basis for defining minimum standards of literacy. Those who score below 36 on the Navy General Classification Test are given the Literacy Test and Non-Verbal Classification Test. Those scoring above 37 on both the Non-Verbal Classification Test and Literacy Test are sent to regular recruit training. Those scoring below 38 on the Literacy Test and above 37 on the Non-Verbal Classification Test are sent into the Recruit Preparatory Training Program, a program of not more than 13 weeks duration designed to bring the men up to minimum literacy standards. Those scoring below 37 on the Non-Verbal Classification Test are referred to the Neuropsychiatric Unit for further screening.

During World War II, manpower shortages, combined with the feeling that in a democracy each should share in the defense effort, led to the induction of substantial numbers of men who were illiterate by the definition of the previous paragraph. Since these men could not immediately profit from the standard program of military indoctrination, which assumed ability to read, special training programs were developed for the groups. These combined some basic military indoctrination with special literacy training. The Navy had such a training installation at Camp Peary, Virginia. The special training program at Camp Peary was in operation from March 1944 to about January 1946. Training was for a 13-week period, after which men were sent for

training in some special school, such as the CB school at Davisville, R.I., or sent directly to a duty assignment.

During the approximately 22 months of its operation, at least 20,000 illiterates went from the school at Camp Peary to other Navy duties. How did they fare in the Navy? In what capacities did they serve? How satisfactory was their service to the Navy?

The present study is concerned with analysing records of the service of illiterates who entered and of those who were "graduated" from the special training program at Camp Peary. In the analysis of these materials, evidence was sought bearing on three questions:

(1) How useful were the group of illiterates to the Navy? In what assignments did they serve, and how satisfactory was their service?

(2) What facts about an illiterate will predict his future success in the Navy?

(3) Did the special training which the illiterates received at Camp Peary contribute to their more effective functioning in the Navy?

The basic materials studied were the service records and medical records of 1026 illiterates, a control group of 1021 men entering the Navy at the same time and from the same geographical region as the illiterate group, and a group of 999 individuals with low verbal intelligence who also entered the Navy at about the same time but who were not classified as illiterates and did not receive special training. From the medical and service records, two general types of information were abstracted. One type consisted of evidences of adequacy of performance in the Navy. In this category were such things as promotions, proficiency ratings, disciplinary actions, and the like. The other type consisted of background facts about the individual which could be determined at the time of his entrance into military service, and which might serve as predictors of his later success in the Navy. In this category were such items as age, marital status, educational background, job history, and test scores at induction. The types of information which were abstracted may best be seen by referring to the record form which was used in abstracting the material. This is appended to the report as Appendix A.

Information entered into the record form was coded for IBM analysis. The items coded, and the categories in which they were coded are shown in Appendix B. Most of the analyses were based on the coded data, using the categories indicated in Appendix B. These analyses were supplemented by detailed analyses of some points (i.e., specific types of offense leading to disciplinary action, specific type of petty officer rate achieved, etc.) carried out directly from the record forms.

Evidence on the first problem - the extent to which the illiterates made a useful contribution to Navy operations - came primarily from comparisons of the illiterate group and the control group. The detailed procedures

for selecting individuals for the control group are described on pages 5-6. In general, each individual in the illiterate group was matched (on the basis of serial number) with an individual who was not classified as illiterate and who had entered the Navy at the same time and from the same locality that he had. This gave a group which was made up of inductees, who came from the same parts of the country, and entered the Navy at the same time as the members of the illiterate group. For comparisons to have any meaning, it seemed important that these factors - and most particularly the date of entering service - be comparable in the two groups. However, it must be recognized that the operation of matching gave a control group which was somewhat unrepresentative of the total entering Navy group. This point will be elaborated in a later section. Comparisons of the groups on background factors are described in Chapter 2, and comparisons with respect to measures indicative of adequacy of service to the Navy are presented in Chapter 3 of the report.

The second problem was whether there were facts about the illiterate known at the time of his entrance into the service which would predict his later success. The various background facts and test scores available for the illiterate were correlated with variables believed to indicate a record of adequate and useful service in the Navy. Evidence on these relationships is presented in Chapter 4 of the report.

The only basis for evaluating the effects of the specialized training program at Camp Peary was by comparison of the illiterate group with the group of individuals with low verbal intelligence. Data were available for men who had Navy GCT scores of 35 or lower. This group had been used in the standardization of the Navy Non-Verbal Classification Test. It was hoped that they would prove to be comparable in ability and other characteristics to the group receiving specialized training at Camp Peary, so that it would be reasonable to attribute differences between the groups to the effect of the special training. Unfortunately, this was not the case. The two groups differed in measures of ability and in other important respects. The evidence on comparability of the two groups is presented in Chapter 2, while comparisons on criterion measures of successful Navy service are given in Chapter 3. The data are not such as to permit drawing any conclusions about the effects of the training program.

CHAPTER 2

NATURE OF THE EXPERIMENTAL POPULATIONS

General Description

There were three groups of men used in the study. No Negroes were included in any of the groups, but there were a few Asiatics. One of the groups was made up of men who had been classified as illiterate at the induction station and had been sent to Camp Peary to take the specialized training program. The second group was made up of men who were selected to match the illiterates on the basis of place of induction and time of entrance in the Navy. These men made up the control or normal group which was supposed to represent a cross-section of the Literate men who entered the Navy at the same time as the illiterates. The third group was made up of men of marginal ability who had Navy General Classification Test scores of 35 or lower but who had not been classified as illiterate and had not been sent to Camp Peary.

1. The "illiterate" group.

The illiterate group consisted of 1026 men inducted into the Navy during the last part of August or early September 1944. They began their literacy training at Camp Peary some time in September 1944 and were in companies 155 to 164 inclusive. These men had been classified as Illiterate at the induction stations since they had scored below 9 on the Qualification Test, but had qualified at least minimally on the Group Target Test. At the time these men were at Camp Peary, the special training program had been in operation there for about six months.

Practically all of the illiterates were inductees. Some of the men had tried to enlist in the Navy at an earlier date but had been turned down because they did not meet the minimum educational and mental standards. Others had been turned down at induction on a previous date for the same reasons or for physical reasons. About 2 percent of the men had had previous service in some branch of the Armed Forces, usually the Army.

Every state had at least one representative in the illiterate sample; however, the majority of the illiterates came from the South and Southwest. The rural areas in these sections contributed the largest proportion of the group.

2. The "normal" control group.

The control group was selected by taking a serial number which was five digits above the serial number of the illiterate serviceman. The name of the man was obtained either from the microfilm list of serial numbers at the Naval Records Management Center in Garden City, Long Island, or from the master card file in the Bureau of Naval Personnel in Washington,

D.C. The man thus identified was included in the control group if he (1) was not a Negro, (2) had not been classified as an illiterate, and (3) had entered the services at the same time and from the same geographical area as his illiterate counterpart. If the man thus selected did not meet these three conditions, he was rejected and another serial number five digits below that of the illiterate was chosen. If this man did not qualify for the control group, a third serial number four digits above that of the illiterate was chosen, and so on. Through the use of this procedure, a control case was found for 1021 of the illiterates. By using this procedure, it was hoped that certain background variables could be controlled so that the chief difference between the groups would be the level of literacy.

Since one of the bases for selecting members of the control group was that the place of induction should be the same as that of the illiterates, the geographical distribution for this group resembles very closely that of the illiterate group. The majority of the men come from rural areas of the South and Southwest. Since information concerning the place of attending school was not available for the control group, the home county was coded as the place of birth. This difference in coding accounts for some discrepancy between the illiterates and controls in population of home county and rural level of living indices.

3. The marginal ability group.

The third group used in this study was made up of 999 men who had scored below 36 on the GCT, and who had entered the Navy at approximately the same time as the illiterates. The group was one which had been used in standardizing the Navy Non-verbal Classification Test, and was composed of those men entering recruit training at Bainbridge, Great Lakes, San Diego, and Farragut bases during certain weeks of September 1944 who had GCT scores below the specified value of 36. Rosters for these men were on file in the Research Division, Bureau of Naval Personnel. These men had not been classified as illiterate and had not been given special literacy training. About 58 percent of this group were enlistees and had not been given the Qualifications Test. For this reason the basis of determining their literacy used at the time of enlistment is not very clear.

Comparison of Groups with Respect to Characteristics and Background Factors

A variety of types of information about the men in the three groups may be examined, in order to determine in what respects the groups are reasonably well matched and in what respects they are sharply differentiated. The matching between illiterate and control groups was designed to control such factors as type of home community and duration of Navy service. The very nature of the groups implies large differences in education and intelligence. The factors for which information was available will be considered in turn.

1. Ruralness of origin.

The density of population of home county is shown in Table 1. It is

Table 1

Percentage Distribution of Men by Population
per Square Mile^a of Home County

Population per square mile	Percentage		
	Illiterate	Control	Marginal
800 and over	7.0	10.5	11.6
600-799	4.2	4.2	3.4
400-599	1.7	3.2	2.6
200-399	5.4	8.3	8.1
100-199	9.7	10.7	11.4
Under 100	72.0	63.1	62.8

* Based on County Data from 1940, U.S. Bureau of the Census.

clear that all three groups are predominantly rural. Illiterate and control groups should match closely on this variable, since a control case was accepted only if the man entered the service from the same induction station as the man whom he was matching. The differences which appear between illiterate and control groups may not be genuine, but a reflection of a difference in manner of defining home county. The home county of the illiterate was defined as the one in which he reported that he had gone to school (i.e., had lived at school age). In the control group this information was not available, so county in which born was used. The differences were not great in any event. The marginal group come from areas which were rural to very nearly the same degree as the control group, though geographically fewer cases come from the South and Southwest.

It should be noted that in selecting a control group which would match the illiterate group in place of origin, one automatically selected a group which was not geographically representative of the total entering population of Navy recruits. The biases of the illiterate group were intentionally carried over into the control group.

2. Socio-economic level of home county.

A measure of general socio-economic level of rural living was obtained from the County Data Book, based on the 1940 U.S. Census.* The County Data Book reports a level of living index for counties based on

* Bureau of the Census. County Data Book - A supplement to the Statistical Abstract of the United States. 1947 Washington, D.C.

housing, income, and education. The average is set at 100 and the greatest weight is given to the educational level of the population 25 years old and over in the county. Distributions for this index are shown in Table 2.

Table 2

Percentage Distribution of Socio-Economic Ratings*
of Home County

Socio-Economic Rating	Percentage		
	Illiterate	Control	Marginal
High (150 and over)	5.7	7.2	4.9
Above Average (120-149)	15.0	19.8	26.0
Average (90-119)	18.8	24.7	27.5
Below Average (60-89)	53.3	44.3	37.2
Low (Below 60)	7.2	4.0	4.3
Median	83.8	91.5	99.3

* Based on County Data from 1940, U.S. Bureau of the Census.

The range of the level of living indices for the illiterate group was from 19 through 179. About 61 percent of the illiterates came from areas which had level of living indices below 90. This may be compared with 48.3 percent of the control cases and 41.5 percent of the marginal group having indices within this range. Median values are respectively 83.8 for illiterates, 91.5 for control group, and 99.3 for the marginal group. Once again, the difference between illiterate and control groups may result from the difference in procedure for identifying home county.

3. National origin.

In all three groups the vast majority were American-born from English-speaking homes. However, foreign-born and non-English-speaking homes occurred with somewhat greater frequency in the illiterate group. The essential facts are as follows:

	<u>Illiterate</u>	<u>Control</u>	<u>Marginal</u>
Born outside of the United States	2.2%	0.4%	0.7%
Language other than or in addition to English spoken in the home	12.6%	4.9%	6.1%

The differences arise primarily from the inclusion of more individuals of Mexican origin in the illiterate group.

4. Age and marital status.

Statistics on age at time of induction are reported in Table 3, while material on marital status is presented in Table 4. The men in the control

Table 3

Percentage Distribution of Age at Induction

Age Group	Percentage		
	Illiterate	Control	Marginal
Under age	0.3	0.1	0.8
17 - 18	46.0	38.3	76.2
19 - 20	16.2	14.8	6.9
21 - 22	10.5	10.0	3.9
23 - 24	11.1	13.7	5.0
25 - 26	8.7	14.6	4.3
27 - 28	2.1	3.2	0.8
29 - 30	2.4	2.5	0.9
31 - 32	0.9	0.8	0.1
33 - 34	1.2	1.3	0.5
35 and over	0.6	0.7	0.5
Median age	19.4 yrs.	20.6 yrs.	18.3 yrs.

Table 4

Percentage Distribution of Marital Status at Induction

Marital Status	Percentage		
	Illiterate	Control	Marginal
Single	65.0	59.4	82.0
Married	33.2	39.8	17.2
Divorced or Separated	1.1	0.7	0.5
Widowed	0.7	0.1	0.2

group are the oldest, on the average, and the difference shows up most sharply if one notes the percent 23 years old or over. This percentage is 36.8 in the control group, 27.0 in the illiterate group, and only 12.1 in the marginal group. By contrast, the percents of individuals 17 or 18 years of age are respectively 38.3, 46.0, and 76.2. The control group is made up of somewhat older men, while the marginal group has a preponderance of

youngsters. A large proportion of this group consisted of 17-year-old enlistees, whereas the other groups included almost exclusively inductees.

The fact that the control group could include almost no enlistees (due to the procedure of matching on the basis of serial number), combined with the data on age, provides further indication of the fact that this group was unrepresentative of the total Navy input at this period.

Paralleling the data on age is the finding that the control group contained a somewhat larger proportion of married men, while the marginal group had a sharply lower percentage of married.

Although fewer in the illiterate than the control group were married, more reported dependents at the time of their induction (59.7% vs. 52.8%). The excess in the illiterate group arose from cases reporting parents and/or siblings dependent upon them. Only 36.0 percent of the marginal group reported any dependents.

5. Educational background.

Since one of our groups was defined as illiterate, and another as consisting of men of low verbal intelligence, it is to be expected that these groups would differ sharply from the control group in educational background. This is indeed the case. Data on school grade completed are presented in Table 5, while evidence on school retardation is presented in Table 6.

The median school grade completed by the illiterates was 5.2, as compared with 7.9 for the marginal group and 10.7 for the control group. The control group fell just slightly above the median value reported for white males 17-34 years old in the 1940 U.S. Census. The percent completing less than four grades of schooling was 21.5 for the illiterate group, 1.0 for the marginal group, and 0.6 for the control group. By contrast, the percents going beyond the ninth grade were, respectively, 1.8, 16.1, and 61.7. Though there is overlap among the groups, the illiterates typically left school in the elementary school, the marginal group in junior high school, and the control group in senior high school.

The retardation index is essentially a measure of overageness in grade. It was assumed that the age for completing the first grade was seven years. The index was found by adding six to the highest grade completed and subtracting the sum from the age the man left school. This gave the number of years the man was overage for his grade. This difference was then divided by the highest school grade completed to get the index of retardation. For example, suppose that a man had completed the third grade and left school at the age of 15. If he had made normal progress in school, he would have completed this grade when he was nine years old, therefore he was six years overage for his grade. The number of years he was overage for his grade divided by the grade he completed

Table 5

Percentage Distribution of Highest School Grade Completed

Highest School Grade Completed	Percentage		
	Illiterate	Control	Marginal
None	1.9	0.1	0.3
Under 4	21.5	0.5	0.7
4 - 6	48.3	8.3	18.1
7 - 9	26.4	29.4	64.7
10 - 12	1.8	52.0	16.1
13 - 15	-	6.6	0.0
16 and over	-	3.1	0.0
Median Grade Completed	5.2	10.7	7.9

Table 6

Percentage Distribution of School Retardation Indices

Retardation Index	Percentage		
	Illiterate	Control	Marginal
Not retarded	5.7	52.6	22.4
0.1 - 0.4	31.8	39.2	61.6
0.5 - 0.9	25.1	7.5	13.3
1.0 - 1.9	25.1	0.5	2.5
2.0 and over	12.0	0.2	0.2
Median	0.73	none	0.13
Information not available	136	84	203

(third grade) would give him an index of retardation of 2.0. In other words, he had repeated every grade twice, i.e., spent three years in each grade on the average.

In the control group more than half the cases show no retardation, and a retardation index of as much as 0.5 (i.e., one and a half years per grade) is found in only 8.2 percent of the group. The marginal group typically shows some retardation, but extreme retardation is still relatively

rare. The median retardation index of 0.13 corresponds to the loss of about one year in completing the eight grades which was the typical educational level for this group. In the illiterate group the median retardation index is 0.73, and 37.1 percent of individuals averaged two or more years per grade. Clearly, those illiterates who had attended school had made very meager progress. The typical illiterate had attended school until he was about 15 in order to complete the four or five grades that he completed.

• The supplementary training of the illiterates beyond public school was also quite limited. Additional training was reported by only 13 percent of the cases, and in only 3 percent of the cases did it last for over a year. The most frequent types were training under the CCC and NYA. The other two groups each showed somewhat greater frequency and duration of supplementary training.

6. Performance on tests of ability.

As would be expected from the way in which the groups were assembled, they differed sharply in test performance. Score distributions on the Navy General Classification Test are shown in Table 7. Median score for the

Table 7

Percentage Distribution of Navy General Classification Test Scores*

Score Interval	Percentage		
	Illiterate**	Control	Marginal
76 - 80		.1	
71 - 75		1.8	
66 - 70		5.9	
61 - 65		7.4	
56 - 60		10.7	
51 - 55	.1	14.0	
46 - 50	.3	15.6	
41 - 45	1.5	14.6	
36 - 40	9.8	14.4	
31 - 35	32.6	10.9	78.9
26 - 30	38.1	4.4	20.1
21 - 25	17.6	.2	0.9
Median	29.8	47.3	32.4

* OCT scores were not available for 166 men in the illiterate group, 164 men in the control group, and 7 men in the low level ability group.

** The OCT test was given to the illiterate group after they had completed nine weeks of special training.

illiterate group is 29.8, and this score was achieved after nine weeks of literacy training. This contrasts with a median of 47.3 for the control group. Only 1.9 percent of the illiterate group received scores above 40, whereas 70.1 percent of the control group fell above this score. The control group contained some low scores-15.5 percent falling at 35 or below. It was a random group, rather than a group selected as having normal scores in GCT, and the bottom tail of this group overlapped the illiterate group.

By definition, the marginal group was made up of men with GCT scores below 36. The bulk of the scores fell in the interval 31 - 35.

The groups may also be compared on the Qualification Test given at the Induction Station. This test served as the primary basis for making the diagnosis of illiteracy. A score of 8 or below was considered to be grounds for classification as an illiterate. Score distributions are shown in Table 8. The control group shows almost no scores below 9, whereas

Table 8

Percentage Distribution of Qualification Test Scores

Score Interval	Percentage		
	Illiterate	Control	Marginal
15 - 17		67.2	9.7
12 - 14		16.4	32.2
9 - 11	0.1	15.5	53.3
6 - 8	33.2	0.8	4.3
3 - 5	28.6	0.1	0.2
0 - 2	38.0		0.2
Median	3.9	16.4	11.0
Not tested	16	21	577

all but one of the illiterates received scores of 8 or lower. Less than half of the marginal group took this test, because they were volunteers. Of those who took the test, about 5 percent fell below the critical score.

The order of the groups on the Mechanical Aptitude Test remains the same. The illiterates fell somewhat below the marginal group, and both fall well below the control group. However, the differences here are somewhat less than on the GCT, and 2.5 percent of the illiterates obtain scores of 50 or over. The data are shown in Table 9.

Two other comparisons are possible between the illiterates and the

Table 9

Percentage Distribution of Mechanical Aptitude
Test Scores

Score Interval	Percentage		
	Illiterate	Control	Marginal
70 - 79		3.5	
60 - 69	0.2	13.8	0.3
50 - 59	2.3	26.0	8.1
40 - 49	26.1	30.6	35.8
30 - 39	53.7	23.0	50.3
20 - 29	17.7	3.1	5.5
Median	35.7	47.3	38.0
No Score Available	206	164	284

Table 10

Percentage Distribution of Non-Verbal
Classification Test Raw Scores

Score Interval	Percentage	
	Illiterate	Marginal
70 - 79	0.1	0.5
60 - 69	1.1	12.7
50 - 59	11.6	33.1
40 - 49	28.4	34.7
30 - 39	33.8	15.0
20 - 29	20.9	3.5
10 - 19	3.8	0.4
0 - 9	0.3	0.1
Median	37.5	48.5
No Score Available	40	20

marginal group. Data on the Non-Verbal Classification Test are shown in Table 10. These data are reported as raw scores - not Navy scaled scores.

The difference between the two groups is quite striking. Only about 17 percent of the illiterates score as high as the median of the marginal group. The two groups differ not only in literacy, but also quite markedly in measures of non-verbal intelligence. The difference in literacy is further documented by scores on the Literacy Test X-1, which are shown in Table 11.

Table 11

Percentage Distribution of Scores on
Literacy Test X-1

Score Interval	Percentage	
	Illiterate	Marginal
45 - 49		0.5
40 - 44	19.5	65.1
35 - 39	23.7	23.8
30 - 34	13.9	7.7
25 - 29	12.5	1.7
20 - 24	8.1	0.6
15 - 19	3.8	0.4
10 - 14	3.0	0.1
5 - 9	1.0	0.1
0 - 4	14.5	
Median	32.1	40.7
No Score Available	48	18

This is a test of literacy at a relatively low level, so most of the marginal group get very close to perfect scores. The illiterate group spreads out over the score range, with a secondary mode at a score of zero.

7. Avocational and work history.

Evidence on hobbies and leisure time activities is presented in Table 12. As a group, the illiterates had few hobbies other than hunting or fishing. About 7 percent reported that they had no hobbies and about 18 percent reported hobbies of a mechanical, constructive, or musical nature. Most of the latter group reported "tinkering with a car" and playing the guitar. The control group reported much more diversified hobbies than did the illiterates. Approximately 46 percent of the controls reported hobbies of a mechanical, constructive, or musical nature. These hobbies also tended to involve more highly developed skills and knowledges than did those reported by the illiterates. The hobbies reported by the marginal group are also a good deal more diversified than those reported by the illiterates.

Table 12

Percentage Distribution of Hobbies and Leisure
Time Activities

Hobby	Percentage		
	Illiterate	Control	Marginal
None	7.3	12.6	14.6
Only sports, hunting, or fishing	74.9	41.8	46.0
Others - i.e., mechanical, musical, etc.	17.8	45.6	39.4
No information	59	154	264

Table 13

Percentage Distribution of Principal
Occupation

	Percentage		
	Illiterate	Control	Marginal
Professional, semi- professional, and managerial	0.3	5.6	0.7
Clerical and sales	0.9	6.6	3.5
Service	1.9	2.2	1.5
Farm worker	42.8	25.1	27.3
Skilled labor	12.1	21.8	11.1
Semi-skilled labor	26.3	15.5	23.0
Unskilled labor	12.5	6.8	13.3
Never worked	3.0	16.4	19.6
No information	34	41	56

Evidence on type of employment is presented in Table 13. Almost all of the illiterates had work experience before joining the Navy. The largest group (43%) was made up of family workers on a farm who received no wages. The next largest group (27%) were employed as semi-skilled workers. About 12 percent were employed as skilled workers and about the same percentage were employed as unskilled workers. The average wage reported by the illiterates who had been employed other than as a family worker was about \$30.00 per week.

The occupational background of the control group was also much more varied than was that of the illiterates. A somewhat larger proportion of the control group than the illiterate had had no full-time work experience before entering the Navy. This was due primarily to the fact that many of the controls had been attending school full-time before entering the service. Farmers and general farm workers made up a large fraction (25%) of the control group, but they were less frequent than among the illiterates. More frequent in the control than in the illiterate group were professional, semi-professional and managerial (5.6 vs. 0.3); clerical and sales (6.6 vs. 0.9); and skilled labor (21.8 vs. 12.1). The Illiterates showed an excess of unskilled labor (12.5 vs. 6.8) and semi-skilled labor (26.3 vs. 15.5).

About one quarter of the men in the marginal group had never worked before coming into the Navy, and about one quarter had been farm workers. Most of the other men had been semi-skilled (22%) or unskilled (13%) workers.

An attempt was made to obtain a comprehensive evaluation of each man's total work experience. The material reported in his personnel record was rated with respect to two dimensions. One evaluation was with respect to the level of independence from family and of social interaction with strangers. These ratings are shown in Table 14. A second rating was with respect to

Table 14

Percentage Distribution of Ratings of Total Work Experience
with Respect to Independence and Socialization

Work Experience Rating	Percentage		
	Illiterate	Control	Marginal
7	1.7	6.0	0.9
6	5.1	12.5	5.5
5	36.5	41.6	50.4
4	4.5	9.6	7.3
3	18.3	7.0	10.7
2	13.7	5.3	9.0
1	20.3	18.0	16.2
No rating available	2	167	231

progress and advancement in his occupation. These ratings are shown in Table 15. More detailed definition of the steps in the rating scale is provided in Appendix C.

The illiterate group showed greater frequencies at the lower levels

Table 15

Percentage Distribution of Ratings of Total Work Experience
with Respect to Advancement and Progress

Work Experience Rating	Percentage		
	Illiterate	Control	Marginal
7	0.8	4.7	0.4
6	4.3	7.5	1.7
5	7.0	12.0	5.3
4	22.4	26.6	28.0
3	18.3	12.2	12.8
2	45.7	35.6	51.0
1	1.6	1.4	0.9
No rating available	2	171	231

on both of these scales. Thus, on the independence and socialization scale, 52.3 percent of the illiterates fell at step 3 or below, as compared with 30.3 percent of the control group and 35.9 percent of the marginal group. On the advancement scale, 65.6 percent of the illiterates fell at step 3 and below, compared with 49.2 percent of the control and 64.7 percent of the marginal group. The illiterates were characterized by job histories which showed relatively little progress and advancement and relatively little contact with the outside world. The most frequent pattern was that of unpaid worker on a family farm.

8. Summary statement.

In summary the "average" illiterate in our sample could be described as follows:

He was inducted in the Navy when he was about 19 years old. At the time of induction, he was single but had one or more people who were partially or wholly dependent on him for support. Before induction, he had lived in a rural area of the South where the standard of living was below the average for the nation as a whole. He had completed the fourth grade in school and left school at the age of fourteen after having repeated at least three grades. Since leaving school, he had worked for his parents or a relative on a non-mechanized farm. In his spare time he hunted or fished. He made a score of 4 out of a possible 17 on the Qualifications Test and a score of 31 on the Navy General Classification Test.

Adequacy of the Records and of the Comparison Groups

The primary purposes of having two groups of men in addition to the illiterate group were to provide some basis for comparing the performance of the illiterates in the Navy with a group of "normal" men who had the same length of duty and to find out how effective the special training program had been in preparing the illiterates for their Navy service by comparing them with a group of men of similar ability who had not been given the training.

Comparisons among the groups of men should be made with a great deal of caution for several reasons. One should remember that the original data for this study were obtained from the service and medical records which, in some instances, were not complete and which contained an undetermined amount of error. All of the information on pre-service background, such as family, education, and occupation, were obtained from the man and accepted at face value. For this reason, items such as education and wage may frequently have been overstated and some such, as arrests and institutionalization of members of the family, may frequently have been understated.

The proficiency ratings of the men were frequently missing from the record especially for the control group; the number of proficiency ratings was not the same for each man; and in some cases, the proficiency ratings were apparently assigned arbitrarily at the separation center. In addition to the proficiency ratings, the items of information most frequently missing from the records were the test scores. In some cases, this was due to the fact that the man was surveyed from the Navy before a personnel qualification card was made up for him, but in other cases the card had been lost from the record.

In addition to there being cases in which some items of information were missing, there were certain aspects of the man's duty in the Navy about which the records did not give enough detail. One could determine rather easily whether a man had been assigned to the CB, a base in the United States, an overseas base, or to some type of ship, but the record seldom gave any information about what he did there.

Although the total length of time in the Navy was about the same for all three groups, the time spent on duty other than training or in transit varied in the three groups. The members of the control group were more frequently assigned to technical schools which required long training periods than were the men in the other two groups; therefore, they had actually less time available to spend at duty stations.

The other consideration which one must keep in mind when making comparisons is the nature of the groups themselves and their adequacy in representing

certain basic Navy populations. The illiterate group is perhaps the most representative. In geographical origin, socio-economic status and age, it matches fairly well the data on illiterates in the 1940 U.S. Census reports.

However, the control group and the marginal group have certain limitations. Let us consider the control group first. This group was supposed to represent a cross-section of literate Navy men who entered the Navy at the same time as the illiterates. Due to the method of selecting the control group, through the serial numbers of the illiterate group, almost all enlistees were automatically excluded from the control sample, since the illiterate group had practically no enlistees. The control group also included a disproportionately large number of men from the rural areas of the South and Southwest to be representative of the total Navy input. The Western, Midwestern, and Northeastern areas of the country were meagerly represented in the control group.

The average age for the control group was slightly more than one year higher than that of the illiterates. Approximately 47 percent of the controls were over 20 years old. At the time these men came in the Navy, the age for induction was 18; therefore, it seems that a large number of the control group had been deferred for some reason. Some of them had had educational or occupational deferments, but many of them were inducted under changes in regulations relating to dependency or physical standards. A much larger proportion of the control group than of the illiterate group had vision defects and were assigned to limited duty.

The control group overlaps the illiterate group to some extent in intellectual ability as measured by the Navy General Classification Test. About 30 percent of the controls have GCT scores of 40 or below, but these are not strictly comparable to the scores for the illiterates since the illiterates were not given the GCT until they had completed nine weeks of special training.

The previous material points out some of the limitations of the control group as a representative sample of literate men in the Navy. The usefulness of the control group as a yardstick for evaluating the relative effectiveness of the illiterates in the Navy is in a measure limited by the degree to which this sample can be considered a cross-section of literate men in the Navy.

Next let us consider the adequacy of the marginal group as a means of obtaining some information about the effectiveness of the special training program in preparing the illiterates for Navy duty. The marginal sample was supposed to represent men of about the same level of intellectual ability as the illiterates. However, the men in the marginal group had not been classified as illiterate and had not been given special literacy training at Camp Peary.

The fact that these men had not been classified as illiterate indicates that they are different from the illiterates in intellectual effectiveness. Another indication of the differences between the two groups in intellectual

ability is the median score of each group on the Non-Verbal Classification Test. The median score of the marginal group on the Non-Verbal Classification Test was 48, which is equivalent to a General Classification Test score of 51; for the illiterates, the median score on this test was 37, which is equivalent to a General Classification Test Score of 40. In other words, the marginal group appears to be made up of men who have low verbal ability rather than low general ability, whereas the illiterates appear to be generally low in intellectual ability.

Another indication of differences in ability in the two groups is the median score made by each group on the Navy literacy test. The marginal group had a median score of 41 on this test (a perfect score would be 44). The illiterate group had a median score of about 28 on the test.

From these facts, it would appear that the marginal group is much superior to the illiterate group not only in the level of literacy but also in general intellectual ability. It is also superior to the illiterate in educational level.

The marginal group also makes an imperfect comparison group because it has a much larger proportion of 17-year-old enlistees. There were no 17-year-old enlistees in the illiterate group. The average age in the marginal group was more than a year below the average of the illiterates. Also fewer of the marginal group than of the illiterates were married or had dependents. Although a large percentage of the marginal group came from rural areas, the rural areas from which they came had a somewhat higher socio-economic level than did the rural areas from which the illiterates came. In view of the differences in literacy level, intellectual ability, education, age, and background, it would seem that comparison of the Navy careers of the illiterate and the marginal groups does not provide a sound basis for evaluating the effectiveness of the literacy training program.

CHAPTER 3

EVALUATION OF THE ACCEPTABILITY OF THE ILLITERATE GROUP IN NAVY ASSIGNMENTS

In this section of the report, various types of evidence will be reviewed which are considered to throw some light on the degree to which the illiterates performed acceptably in their Navy assignments. In each case, comparative data will be reported for the illiterate group, the control group, and the marginal ability group. These groups have been defined and their characteristics elaborated in the previous chapter of the report.

Type and Length of Duty

All types of Navy duty stations were represented in the three groups. The frequency of different assignments is shown in Table 16. The duty assign-

Table 16

Percentage Distribution of Type of Duty Assignment

Type of Duty	Primary Duty			Secondary Duty		
	Illiterate	Control	Marginal	Illiterate	Control	Marginal
None other than						
training	18.5	17.2	13.4	90.0	89.1	83.7
U.S. Perm. Party-CB	1.7	0.1	0.3	0.3	0.0	0.2
U.S. Perm. Party-other	9.6	18.7	12.8	3.3	3.3	4.3
Overseas - CB	21.2	4.0	12.1	0.5	0.3	0.3
Overseas - Other	6.2	9.9	7.7	0.9	1.9	2.8
Sea Duty-Ship of line	12.0	12.6	22.5	1.7	2.0	2.2
" " -landing craft	14.2	11.3	8.0	0.8	0.7	1.4
" " -minesweeper,						
patrol	2.2	1.8	1.6	0.3	0.5	0.4
" " -auxiliary						
ship	12.7	22.7	20.5	2.2	2.1	3.8
" "-miscellaneous	1.8	1.7	1.0	0.2	0.2	0.8
N	1026	1021	999	1026	1021	999

ments were divided into primary duty assignment and secondary duty assignment. No duty was counted if a man was assigned for the purpose of further transfer or for training. We are interested here in the type of duty assigned; therefore all assignments to the same type of duty have been lumped together for the purpose of

determining primary or secondary duty. For example, if a man had been assigned for two months to the 165th CB battalion, and five months to the 3rd CB battalion, these were considered to be the same type of assignment, and the man was recorded as having seven months of duty in the CBs. The type of duty held for the longest period of time was considered to be the man's primary duty and any other duty over 90 days duration was considered his secondary duty. No man in any of the three groups had more than two types of duty and the majority of the man had only one type of duty other than training. Nineteen percent of the illiterates, 17 percent of the control group, and 13 percent of the low level ability group had no duty other than training. These men had been discharged before assignment to duty either for physical disability, psychogenic defects, inadequacy, or dependency, except that in the control group, some of the men who had no duty had been discharged to accept commissions.

The percentage of men assigned to certain specific types of duty varied considerably from group to group. Table 16 indicates that those assigned to the CBs and to landing craft came most often from the illiterate group. The control group had the highest rate of assignment to U.S. permanent party and to auxiliary ships - including armed guards. The marginal group contributed the largest proportion to ships of the line - battleships, cruisers, destroyers, and aircraft carriers.

As previously stated, a very small percentage of men in each group had a secondary duty assignment. The three most common secondary duty assignments in all three groups were at U.S. bases, on auxiliary ships, and on battleships, aircraft carriers, destroyers, or cruisers. In addition the men in the control group and marginal group were assigned to overseas bases other than CB for secondary duty.

Length of tour on duty is shown in Table 17. Differences in this respect

Table 17

Percentage Distribution of Total Length
of Time in Navy

Length of Time in Days	Percentage		
	Illiterate	Control	Marginal
0 - 90	7.9	9.9	9.3
91 - 180	5.6	1.5	1.8
181 - 270	1.3	1.5	1.9
271 - 360	2.6	2.0	1.3
361 - 450	10.5	7.3	5.4
451 - 540	23.6	23.0	13.2
541 - 630	32.3	30.4	31.0
631 - 720	15.5	23.9	34.0
721 and over	0.8	0.5	2.1
Median	534 days	553 days	590 days

are quite small. The control group averages about a month longer than the illiterates, and the marginal group still about a month longer. A year and a half is about typical for all groups.

Evidences of Satisfactory Service in the Navy

From the material which was available in the service and medical records, the following data were extracted as possible indicators of the man's effectiveness in the Navy:

1. Length of time at duty station
2. Sea duty and overseas duty
3. Proficiency in rate
4. Promotions
5. Disciplinary actions and types of offense
6. Time lost from duty
7. Type of separation and medical survey
8. Indications of disease and disability
9. Veterans Administration claims
10. Composite criterion scores.

In this section of the report, the illiterates will be compared on these variables with the control group and with the marginal group, and the marginal group will be compared with the control group.

1. Length of time at duty station.

It was felt that there would be a tendency on the part of a unit commander to transfer out men whom he considered unsatisfactory in his unit. On these grounds, it was hypothesized that staying in a unit for a considerable period of time was one indicator of adequate adjustment to the job. The evidence on this point is presented in Table 18.

Table 18
Percentage Distribution of Longest Tour of Duty
and Average Tour of Duty

Length of Time	Longest Tour of Duty			Average Tour of Duty		
	Illiterate	Control	Marginal	Illiterate	Control	Marginal
None other than training	14.5	14.2	11.4	14.5	14.2	11.4
Under 90 days	5.4	4.3	2.4	13.2	9.8	9.5
90 - 179 days	20.0	17.0	13.0	27.6	27.6	28.8
180 - 239 days	11.3	13.4	11.7	13.4	14.3	11.4
240 days and over	48.8	51.1	61.4	31.3	34.1	38.8

The three groups were very similar in the longest time spent at any

duty station. The medians for the three groups were as follows: marginal group - 275 days; control group - 270 days; illiterates - 267 days. The average length of time at each duty station for the marginal group was 210 days, for the control group - 202 days, and for the illiterates - 188 days.

Further examination suggests, however, that these figures cannot be taken entirely at face value. In the first place, a good many members of the control group had had very long periods of training, which automatically reduced the time available for duty assignment. Furthermore, for these groups the length of time that a man spent at a duty station seemed to be related to the type of duty station to which he was assigned. For example, in the control group about 10 percent of the men were assigned as armed guards aboard merchant vessels. Each time that a trip was completed, the man reported back to the armed guard center and was reassigned to another ship. Each of these reassignments had to be counted as a change of duty and, as a result, both the longest tour of duty and average tour of duty for this group were relatively short. Men who were assigned to aircraft carriers, battleships, cruisers, and destroyers and men who were assigned to overseas bases tended to remain longer in those assignments than did men assigned to bases in the United States. The fact that the men remained longer on these types of duty did not appear to be related to other indications of satisfactory performance on duty such as proficiency ratings, disciplinary actions, and promotions so much as to the ease with which transfers could be effected. For these reasons, it is felt that length of time at duty station is not a very meaningful indicator of acceptability. What evidence there is, taken at face value, is that the illiterates did not differ appreciably from the other groups on this indicator.

2. Sea duty and overseas duty.

Since the basic mission of the Navy is to man ships on the sea, it might be argued that functioning in actual sea duty, or in overseas duty, is an indication of acceptable service in the Navy. The frequency and length of sea duty and overseas duty for the three groups are shown in Table 19.

Table 19
Percentage Distribution of Length of Time
on Sea Duty and Overseas Duty

Length of Time	Sea Duty			Overseas Duty		
	Illiterate	Control	Marginal	Illiterate	Control	Marginal
None	51.2	44.3	38.9	41.4	69.5	61.3
Under 90 days	3.9	3.4	3.3	27.4	12.9	15.0
90 - 179 days	5.3	7.7	6.7	5.3	4.2	4.4
180 - 239 days	4.0	6.1	5.7	7.0	3.0	2.4
240 days and over	35.6	38.5	45.3	18.8	10.4	16.8

The illiterate group contributed the largest percentage having overseas

service of some kind by a considerable margin. Overseas service in this instance is counted as any time spent outside of the continental U.S. other than on sea duty. Almost 59 percent of the illiterate group, 39 percent of the marginal group, and 31 percent of the control group had overseas duty. The median length of time spent in overseas duty for the men who had this type of duty was as follows: marginal group - 176 days; control group - 145 days; illiterate group - 123 days.

A larger percentage of men in the marginal group than in the other two groups had some type of sea duty. About 61 percent of the marginal group, 55 percent of the control group, and 49 percent of the illiterates had sea duty of some kind. The length of time these men spent on sea duty varied from under 30 days to almost two years. The median number of days spent on sea duty by those having this duty assignment was 249 days for the marginal group, 248 days for the illiterates, and 247 days for the control group.

In general, as far as sea duty and overseas duty are concerned, the illiterate group compares favorably with the others. These men were, in a large proportion of the cases, incorporated into the Navy's actual combat mission.

3. Proficiency in rate.

The proficiency ratings reported for each man by his commanding officer represent a rather direct indication of how the service of a particular man was evaluated. Of course, these ratings suffer from all the familiar difficulties which plague ratings wherever they are used -- differences in individual standards, inadequate opportunity to observe the man in his job, personal biases, and the like. In the present case, additional difficulties were encountered due to lack of ratings, availability of only perfunctory ratings given at the time of separation, and the like. However, with all these limitations the ratings still represent one of the most direct evaluations of a man's judged worth to the Navy. The data are shown in Table 20.

Table 20

Percentage Distribution of Average Proficiency in Rate

Average Rating	Percentage		
	Illiterate	Control	Marginal
4.0	0.2	1.8	0.9
3.5 - 3.9	50.5	73.1	54.6
3.0 - 3.4	44.8	23.5	37.9
2.5 - 2.9	3.1	1.0	3.9
2.0 - 2.4	0.4	0.3	1.1
Under 2.0	1.0	0.3	1.6
No ratings	199	215	186

The possible range of ratings is from 0.0 to 4.0. A rating of 3.5 was a general requirement if a man was to be promoted, so that a rating at that level or above could ordinarily be thought of as indicating satisfactory service. Ratings were supposed to be given at least twice every year, and preferably every quarter. In addition, the man was supposed to be rated at each change of station. As noted above, this was not actually the case in the records which were examined. Individual records varied greatly in completeness.

In all three groups the ratings were concentrated between 3.5 and 3.7. The means of the average proficiency in rate for the three groups were as follows: control group - 3.6; marginal group - 3.4; illiterates - 3.4. Although there is not too much difference in the mean proficiency ratings for the three groups, the distributions of the ratings differed considerably. Seventy-five percent of the control group had average proficiency ratings of 3.5 or above, whereas only 56 percent of the marginal group and 51 percent of the illiterates had average ratings of 3.5 or above. Only 1.6 percent of the control group had average proficiency ratings below 3.0 and over half of these had ratings of 2.8 or 2.9. About 5 percent of the illiterates and 7 percent of the marginal group had average ratings below 3.0. In all three groups almost all of the men who had ratings below 2.5 received these ratings at a time when they had been subject to disciplinary actions.

If we take an average proficiency in rate of 3.5 as indicating a satisfactory quality of service in the Navy, we see that three-fourths of the control group were judged to be satisfactory, as compared with only half of the illiterate group. Due to the inadequacy of the record of ratings in many cases, these values may well underestimate the difference. By this criterion, the illiterates as a group were clearly less satisfactory, though half of the group reached the specified standard.

4. Promotions.

The promotions that a man receives during his tour of duty in the Navy are sometimes considered indicative of his efficiency in the Navy. Theoretically all men have equal opportunities for promotion; therefore, it is assumed that differences in the number of promotions reflect differences in proficiency. Actually this is not entirely true since promotions depend to some extent upon the openings in the rate at the man's station. On stations with a large complement of men, the man's opportunities for promotion are much greater than at stations where the complement is small. Another factor to be considered in comparing the number of promotions in the three groups is that graduation from certain technical schools in the Navy, at least during the war, carried almost automatic promotion at least to a rank of third class petty officer. Since eligibility for these schools was dependent to some extent upon GCT scores, none in the illiterate or marginal groups were able to qualify.

In this study, the number of promotions has been determined on the basis

of the man's rate at the time of discharge. All of the men are considered to have entered the Navy as apprentice seamen. If a man had been promoted and then reduced in rank as a result of disciplinary action, that promotion was not counted. For example, if a man had been promoted to seaman first class and then had been reduced in rate to apprentice seaman by a court martial and had been discharged as an apprentice seaman, then he would not have been considered as having received any promotions. The data on promotions are presented in Table 21.

Table 21

Percentage Distribution of Promotions

Rate at time of discharge	Percentage		
	Illiterate	Control	Marginal
Apprentice Seaman	13.3	10.8	11.2
Seaman Second Class	31.1	14.6	26.0
Seaman First Class	40.5	37.5	42.7
Petty Officer Third Class	14.7	31.1	18.8
Petty Officer Second Class	0.4	5.8	1.1
Petty Officer First Class	0.0	0.2	0.1

The number of promotions was notably higher in the control group than in the other two groups. The difference shows up chiefly in the frequency with which the men were promoted to petty officer. In the control group, 37.1 percent ended up their service in the Navy as a petty officer, while the percentage was 15.1 in the illiterate group and 20.0 in the marginal group. The percent ending up as second class seaman was in the reverse order - 31.1 percent in the illiterate group, 26.0 percent in the marginal group, and 14.6 percent in the control group. There were 10.8 percent of the control group, 11.2 percent of the marginal group, and 13.3 percent of the illiterate group who were discharged from the Navy as apprentice seamen. Since promotion to seaman second class was automatic for any man who finished boot camp, these were men who had either been surveyed out of the Navy before finishing boot training or been broken back as a result of disciplinary action.

In addition to the number of promotions that the men in each group received, it is also of interest to note the type of ratings which the men in each group obtained. These findings are shown in Table 22. The men in the control group obtained ratings of petty officer in many more different types of rates than did the men in the other two groups. The areas in which the control group surpassed the other two were in the aviation rates, the electrical and electronic rates (non-aviation), signalmen and gunners mates, quartermasters, storekeepers, yeomen, and specialists. In these categories, the control group had about ten times as many petty officers as the other groups.

Table 22

Frequency of Different Petty Officer Ratings in Illiterate,
Marginal, and Control Groups

Type of Rate	Frequency		
	Illiterate	Control	Marginal
Boatswain, Coxswain	27	43	49
Carpenter	24	23	20
Mechanical	70	83	65
Services	19	33	40
Electrical, Electronic	4	79	8
Aviation	1	30	1
Specialist	0	14	0
Yeoman	0	14	2
Quartermaster, Storekeeper	2	29	2
Signalman, Gunner	5	18	4

In other areas there was very little difference among the three groups in the number of petty officers, in one or two cases the marginal or illiterate group even exceeding the control. Examples are the mechanical group of rates (shipfitter, metalsmith, machinist, motor machinist mate), coxswain or boatswain, carpenter's mate, and the service group.

Except for the group of coxswains and boatswains mates in the marginal group, the majority of whom received these rates in the CBs, the type of duty station did not seem to affect promotions greatly in the marginal and control groups. However, in the illiterate group almost 66 percent of the men who made third class petty officer or above were assigned to the CBs. Thus in this group the men who made petty officer did so in only a limited range of rates and largely in one specific type of duty assignment.

5. Disciplinary actions.

An evaluation of one negative aspect of a man's career in the Navy may be made by studying the number, type, and severity of disciplinary actions which the man received in the course of his Navy career. The findings dealing with disciplinary actions are shown in Tables 23 and 24.

The men in the control group had significantly fewer, and somewhat less serious disciplinary actions than the men in either of the other two groups. Only about 11 percent of the control group, as compared with 23 percent of the illiterate and 26 percent of the marginal group, showed any disciplinary action in their record. Cases involving a summary or general court martial occurred for 1.8 percent of the control group, as compared with 5.5 percent of the illiterate and 6.8 percent of the marginal group.

Table 23

Percentage Distribution of Disciplinary Actions

Type of Disciplinary Actions	Percentage		
	Illiterate	Control	Marginal
None	77.4	88.7	73.9
Nothing higher than Captain's Mast	13.1	7.3	15.7
Nothing higher than Deck Court	4.0	2.2	3.5
Nothing higher than Summary Court Martial	3.6	1.6	4.9
General Court Martial	1.9	0.2	1.9

Table 24

Percentage Distribution of Types of Offenses

Type of Offense	Percentage		
	Illiterate	Control	Marginal
None	77.6	88.5	73.8
AOL or AWOL only	12.2	4.0	7.3
AOL / or AWOL and other	4.2	1.9	6.1
Other	6.0	5.6	12.7

In addition to the differences among the three groups in number and severity of disciplinary actions, there were also group differences in the types of offenses. In all three groups the most common offense was AOL or AWOL. The men in the marginal group were charged more frequently than were the men in the other two groups with disobedience of orders, absence from duty, station or muster, violation of regulations, drunkenness, neglect of duty or shirking duty, theft, falsehood, profanity, disorderly conduct, sleeping on watch, and disrespect for officers. The illiterates were disciplined more frequently than were men in the other two groups for assault, loss of ID cards, and for being in restricted or off-limits areas.

All three groups had higher disciplinary action rates for those men who were stationed at a base in the continental United States than for any other type of duty. Among the illiterates the men who were assigned to the CBs overseas had the lowest disciplinary action rate. In the marginal group and the control group, the best disciplinary action record was made by men who were assigned to an overseas base other than the CBs. The disciplinary record of men in the control group who were assigned to sea duty was somewhat

better than that for the illiterates and substantially better than that of the marginal group. Men in the control group and in the marginal group who were assigned to the CBs overseas had higher disciplinary rates than did illiterates who were assigned to this same type of duty.

In interpreting these data on disciplinary actions, one should remember that these groups differ appreciably in marital status, age, and other background facts. The marginal group had many more 17- and 18-year-olds than the other two groups. The higher rate of disciplinary offenses and the type of offense committed may have been due in part to the relative immaturity of this group rather than to differences in general ability or training.

6. Time lost from duty.

The number of days that a man is absent from duty due to misconduct, AOL, or AWOL, or imprisonment is a reflection of the man's contribution to the Navy. Since a loss of time stems primarily from misconduct or disciplinary action, the findings here naturally parallel closely those for disciplinary actions. They are shown in Table 25.

Table 25

Percentage Distribution of Days Lost from Duty Due to Misconduct

No. of days lost	Percentage		
	Illiterate	Control	Marginal
None	79.8	93.0	81.0
Less than 24 hours	7.7	2.7	4.3
1 - 5 days	4.1	1.5	3.7
6 - 14 days	2.6	1.0	3.6
15 - 30 days	1.2	0.7	2.5
Over 30 days	4.6	1.1	4.8

Only 7 percent of the control group lost any time, compared with 19 percent of the marginal group and 20 percent of the illiterate group. Five times as many in the marginal and illiterate groups lost over 30 days. Of the men who lost time, the median number of days lost was: control group, 2 days; illiterate group, 4 days; marginal group, 7 days.

7. Type of separation and medical survey.

The type of separation a man receives from the Navy is a rough final evaluation of a man's service by the Navy. At least, when the discharge is other than honorable, it is an indication of lack of complete satisfaction. The evidence on this point is summarized in Table 26.

Table 26

Percentage Distribution of Type of Separation from the Navy

Kind of Separation	Percentage		
	Illiterate	Control	Marginal
Honorable discharge	82.7	87.5	84.7
Enlistment terminated by death	0.6	0.6	0.3
U.H.C. physical disability	2.1	3.0	0.9
U.H.C. unsuitability	10.6	7.8	10.2
U.H.C. low conduct and/or low proficiency ratings	2.5	0.7	2.0
U.H.C. underage at enlistment	0.5	0.3	0.5
Bad conduct discharge	0.7	0.0	0.7
Dishonorable discharge	0.2	0.1	0.7

Though the great majority of discharges were honorable in all three groups, other kinds were somewhat more frequent in the illiterate and marginal groups than in the control group. The difference arose from somewhat higher rates in these two groups of discharges under honorable conditions for unsuitability and for low conduct or proficiency rating, and of bad conduct and dishonorable discharges. There was only one bad conduct or dishonorable discharge in the control group, while there were 9 in the illiterate group and 14 in the marginal group.

There is a good deal of overlap between medical surveys and under-honorable-conditions discharges, but the correspondence is not complete. Some medical surveys correspond to honorable discharges, and some of the other types of discharges are not based on medical surveys. Experience with respect to surveys is summarized in Table 27.

Table 27

Percentage Distribution of Medical Surveys

Reason for Survey	Percentage		
	Illiterate	Control	Marginal
None	80.7	84.7	85.3
Psychogenic defect - inadequate personality	7.6	8.6	10.2
Inability to learn	5.6	0.0	0.0
Physical disability - non-combat	4.7	5.3	3.5
Eneuresis	1.3	0.9	1.0
Physical Disability due to combat	0.1	0.0	0.0

Almost all of the men who had under-honorable-conditions discharges had been surveyed from the Navy during boot training for unsuitability or physical disability. The largest proportion of surveys in each group was for inadequate personality, accounting for 8 to 10 percent of the total group and about half to two-thirds of all the surveys. Surveys for physical disability were received by 4-5 percent of cases. The one sharp difference between the groups was in the category "inability to learn." In the illiterate group 5.6 percent were surveyed for this reason, while it was never used in the other groups. The category was apparently only in use at Camp Peary. Since this group had been screened to eliminate the mentally defective, it is conceivable that the men discharged for inability to learn and mental deficiency actually had psychogenic defects. Less than 1 percent of all the medical surveys for psychogenic reasons in the three groups were given after boot camp. It is interesting to note that the men in all three groups who received medical surveys for psychogenic reasons were likely to be older than the average, to be married, and to have a history of serious retardation in school.

8. Indications of disease and disability.

Sickness and disability, whether while in the service or later as a veteran, are indications of an unsatisfactory man from the point of view of the service and the national interest. Evidence on this point is provided by days of hospitalization, occurrence of venereal infection, and occurrence of veterans claims. These three types of information are presented in Tables 28, 29, and 30 respectively.

Table 28

Percentage Distribution of Days Lost from Duty Due to Hospitalizations

Number of days	Percentage		
	Illiterate	Control	Marginal
None	52.5	47.5	48.1
1 - 10 days	17.6	23.9	23.6
11 - 30	16.7	14.6	15.7
31 - 50	4.7	3.6	5.0
51 - 70	2.7	3.0	3.0
71 - 80	1.4	1.2	0.8
81 days and over	4.3	6.1	3.8

Fifty-two percent of the illiterates, 47 percent of the control group, and 48 percent of the marginal group had no hospitalizations. The majority of the hospitalizations were for infectious diseases, especially those of the upper respiratory tract. Although a smaller percentage of the illiterates

Table 29

Percentage Distribution of Venereal Infections

Number of Infections	Percentage		
	Illiterate	Control	Marginal
None	95.1	96.9	95.1
One	3.3	2.6	4.0
Two	1.2	0.4	0.4
Three or more	0.4	0.1	0.5

Table 30

Percentage Distribution of Veterans Administration Claims
(other than for education, training, or burial)

Type of Claim	Percentage		
	Illiterate	Control	Marginal
None	78.8	77.6	77.5
Disability	10.6	8.9	9.5
Dental only	9.7	13.5	11.8
Other	0.9	0.0	1.1

than the controls or low-level ability men were hospitalized, the median number of days lost by the illiterates who became hospitalized was slightly larger than for the other two groups - 16 days for the illiterates as compared to 12 days for each of the other two groups. Combining the two considerations of frequency and duration, we might conclude that there was no real difference among the groups with respect to time lost because of sickness.

The marginal and illiterate groups both show a somewhat higher rate of reported venereal infection than the control group. They also show an excess of cases with repeated venereal infections. However, the differences are not great and are of just borderline statistical significance.

9. Veterans Administration claims.

The data on Veterans Administration claims used in this report are somewhat incomplete since the only evidence available was the request form sent by the regional office of the Veterans Administration to the Naval Records Center. Only claims for disability, dental treatment, and hospitalizations

were recorded. There was no follow-up to see if the claims were allowed.

Claims for disability, together with the category "other", which included remissions to Veterans Administration hospitals, were somewhat more numerous in both illiterate and marginal groups than in the control group, though the differences are not large and are only at the borderline of statistical significance. The control group shows more claims for dental treatment. It is interesting to note that men who had very little time in the service, usually less than 90 days, were much more likely to make claims for disability compensation or hospitalization than were those men who had long tours of duty. Making a claim appears to be more related to a man's level of physical and personal adjustment before entering the Navy than to disabling experiences encountered in the service.

10. Composite criterion scores.

As a kind of crude summary evaluation of the man's service in the Navy, a composite criterion score was assigned to each man. The criterion score was determined by awarding one point for each promotion and one point for each of the following: no disciplinary actions, no Veterans Administration claims, no venereal disease infections, average proficiency in rate of 3.5 or over. The range of the composite criterion scores in all three groups was from 1 through 9. The score distributions are shown in Table 31. The median criterion score for the control group was 6.5; for both the illiterate and marginal groups, it was 5. Differences are most conspicuous at the extremes. In the control group 22.5 percent got ratings of 8 or 9, compared with 6.4 percent in the illiterate and 8.6 percent in the marginal group. In the illiterate group, 27.8 percent got ratings of 4 or below, compared with 25.5 percent of the marginal group and only 16.2 percent of the control group.

Table 31

Percentage Distribution of Composite Criterion Scores
(High Score Corresponds to Effective Service)

Criterion Score	Percentage		
	Illiterate	Control	Marginal
9	0.3	3.0	0.5
8	6.1	19.5	8.1
7	19.1	29.0	22.2
6	24.6	20.7	23.6
5	22.1	11.5	20.1
4	10.7	3.4	10.2
3	12.6	9.2	11.0
2	3.9	3.5	4.2
1	0.6	0.1	0.1

Summary Statement

We have examined a number of indicators of the quality of each man's service in the Navy. As we compared the illiterate and the control groups, there were some indicators on which the illiterate group showed up decidedly less well. They received many less promotions, only about 40 percent as many as men in the control group. When they did make petty officer, it was only in a limited range of non-technical rates. The illiterates were twice as likely to have an average proficiency in rate below 3.5, and three times as likely to have one below 3.0. They were twice as likely to show disciplinary actions in their record, and ten times as likely to have had a general court martial. They were three times as likely to have lost time due to misconduct. They were somewhat more likely to have been surveyed out of the Navy for medical reasons, and somewhat less likely to have received an honorable discharge. They showed a somewhat higher rate of venereal infection. Since many of these entered as components into the composite criterion score, it follows that they scored lower on the composite.

In certain other respects, there was relatively little difference between the groups. The illiterates held their own very well in frequency of sea duty and overseas duty, and in the length of time which they spent in each duty assignment. The illiterates did not show an excess of hospitalizations while in the Navy, and the difference in incidence of Veterans Administration claims was not great. Even in those respects in which individual illiterates showed up poorly, it must be recognized that there were many others who were apparently quite satisfactory.

In most of the factors which differentiated the illiterates from the control group, we find the marginal group occupying an intermediate position, but nearer the illiterate than the control group. As compared with the illiterate group, they got slightly more promotions, had a somewhat higher percent of proficiency ratings above 3.5, fewer medical surveys, fewer Veterans Administration claims. However, in the case of disciplinary actions, the marginal group did appreciably less well than the illiterates. They got into trouble more often, and the nature of the offenses suggests that it was more serious trouble. This is probably to be understood in part as a reflection of the youth and immaturity of members of the group. However, the period at Camp Peary may have had some influence both through weeding out potential trouble-makers and through the indoctrination training which was provided.

CHAPTER 4

PREDICTING THE SUCCESS OF ILLITERATES IN THE NAVY

It would be extremely advantageous to be able to select from the total pool of illiterates those who have the best chance of finishing the training program and of serving acceptably in some type of military duty assignment. Almost 14 percent of the illiterates in this sample failed to complete the training program. These men represent an investment of time and money from which the Navy received no return. They also represent a disproportionately large fraction of the veterans who made claims for disability pensions and for hospitalizations - an additional expense to the government. The records of many others involve medical surveys, major disciplinary actions, low proficiency ratings, and other evidences that the men have made little contribution to the Navy mission.

In order to obtain evidence on which background variables were related to ability to finish the training program and to proficiency in duty assignments, two types of analyses were made. For the non-continuous variables, Chi squares were computed against pass-fail in the literacy training program, against promotions, and against composite criterion scores. For the other variables, correlation coefficients were computed against these same criterion measures.

Difficulty was encountered in handling certain variables due to the incompleteness of the data in some records. In some instances it seemed best to drop the variable from the analysis because the information was missing in too many cases or was reported too unreliably for use. Thus, a detailed examination of medical survey reports suggested that a history of institutionalization of family members for mental disorders or a history of a large number of arrests for anything other than traffic violations bore a high relationship to medical discharge for unsuitability. However, there was usually quite a discrepancy between the information on these variables in the full survey report and the record of the man's statement at the time of entrance into the service. The statement at entrance would apparently not be effective in identifying these cases.

Let us consider first the variables which appear to have value in predicting whether the man will complete the literacy training program. A summary of the Chi square analyses is presented in Table 32. The non-continuous variables which were significant for predicting ability to complete the training program at least at the .05 level of significance were marital status, dependents at induction, hobbies, ability to sign own name, occupation, and civilian court record. Information on all of these variables is available at the time the man first comes into the Navy.

The specific responses which indicate a higher probability of failure are shown in Table 33. Thus being married and the related fact of having

Table 32

Summary of Analysis of Relationships of
Non-Continuous Variables to Completion
of Training Program at Camp Peary

Factor Analyzed	Level of Significance*
Marital status	.02
Dependents at induction	.001
Principal occupation code	.05
Employer code, for those who had worked	n.s.
Training other than public school	n.s.
Hobbies	.001
Sign own name	.001
Physical defects at induction	n.s.
Civilian court record	.02
Member of family institutionalized	n.s.
Citizenship	n.s.
Language Spoken	n.s.
Parental birthplace	n.s.
Status of parents	n.s.

* n.s. signifies not significant at the .05 level.

Table 33

Specific Items of Background Associated with Failure
to Complete Training At Camp Peary

Item	No. Giving Response	No. Failing to Complete	% Failing to Complete*
Was married	333	62	18.6
Had dependents at induction	598	94	15.7
Had never worked	32	9	28.1
Principal occupation - skilled labor	123	25	20.3
Reported no hobbies of any kind	68	17	25.0
Hobbies other than sports	165	10	6.1
Had been arrested	81	18	22.2
Not able to sign own name	15	9	60.0

* In the total group of illiterates, 13.4% failed to complete the training at Camp Peary.

dependents are both unfavorable signs. The relatively high failure rate for men employed in skilled labor may be related to the fact that these men were likely to be older and to have family responsibilities. A record of not having worked at all gave a poorer prospect of success. It should be remembered that on the average the illiterates had left school at about age 14, so that they had had an opportunity to build up quite a work history prior to their entry into the Navy. The significance of a history of no work or no regular work is further supported by examining the detailed reports of medical surveys. These reports gave more information on civilian background, and the information in these records is more reliable since it was gathered by trained social workers. In general, the work histories of these men showed either no employment or no long-term employment. Complete absence of hobbies was an unfavorable sign, as was inability to sign his own name. Hobbies of constructive or mechanical nature, by contrast, were indicative of probable success. A record of one or more arrests was also an unfavorable indication.

Although the number of illiterates who were unable to sign their own name at the time of induction was very small - less than 2 percent of the group, the ability to sign the name was significantly related to successful completion of Camp Peary. There were only 15 men out of the 1026 illiterates who were unable to sign their names. One would expect these men to be the ones who reported that they had never attended school, but only three men fell in this category. The others reported that they had attended school from one to eight years. The three men who had not attended school and could not sign their names not only finished the training program but did better on duty than the average illiterate. The men who attended school and still could not sign their names had, as a rule, very high rates of educational retardation. It is very probable that the inability to sign the name for this group is indicative either of an extremely low mental ability or very poor adjustment or both.

Biserial correlations were computed for the continuous background variables against pass-fail in the specialized training program at Camp Peary. These correlations are shown in Table 34. The best single predictor of ability to finish the training program is the index of retardation which has a correlation of $-.56$ with pass-fail at Peary. The fact that this index has the highest validity - greater than highest school completed, or years of schooling, or any of the tests of aptitude or school achievement - is quite striking and somewhat surprising. For the actual process of determining this index, readers are referred to pages 10-11. It will be remembered that the index is a function of the age at which the individual left school and the highest grade completed. A person receives a high retardation index because of any of the following factors, singly or in combination:

- (1) He repeated school grades a number of times.
- (2) He started school late, entering the first grade over-age.
- (3) He attended school irregularly, missing some years.

This pattern of being apparently exposed to education but unable to progress

Table 34

Biserial Correlations of Background Variables
against Pass-Fail at Camp Peary

Variable	Bi-Serial r	No. Total Group	No. Peary Graduates
Rural level of living index	.09	1026	895*
Population per square mile - home county	.00	1026	895
Age at induction	-.13	1026	895
School grade completed	.37	1021	893
Number of years attended school	.21	874	787
Age left school	.05	890	781
Index of retardation	-.56	890	781
Length of specialized training	.11	886	801
Total time in occupation	-.14	974	863
Time with last employer	-.08	909	823
Wage	.00	909	811
Work Index I - socialization	.10	1024	894
Work Index II - progress in occupation	.17	1024	894
Qualification Test	.17	1010	883
Group Target Test	.02	964	840
Non-Verbal Classification Test	.26	987	867
Literacy X-1	.27	978	871

in it seems to give a prognosis of non-success in the Navy training program. In very simplified statement, it is not the uneducated but the uneducable who fail at Camp Peary.

The second best predictors were the highest school grade completed and the Literacy Test X-1, each of which had a correlation of .37 with the ability to finish the training program. Although the number of years the man attended school correlated .21 with graduation from Peary, there is some doubt as to how much confidence can be placed in this correlation. The reporting of the number of years of school attendance was very undependable - the man tended to report this as the same as or very close to the highest grade completed whereas other evidence from the records showed that it should have been much higher. For example, a man might state that he had completed the third grade in school and had attended school for only three years. This would indicate that the man had not repeated any grades. This same man, however, might report that he had left school when he was 16 years old. If he had not repeated any grades, then this would mean that he started the first grade when he was 13 years old. This seems scarcely credible. There were many discrepancies of this type.

Two tests in addition to the Literacy Test X-1 gave modest correlations with success at Camp Peary. These were the Non-Verbal Classification Test (.26) and the Qualification Test (.17). Two indices based on civilian work history yielded small correlations (.10 and .17), while age was negatively correlated with graduation (-.13). Length of specialized training outside of public school had a slight positive correlation (.11), while total time in civilian occupation gave a small negative correlation (-.14).

Using the biserials in Table 34 and the intercorrelations of variables in Table 38, regression weights and a multiple correlation were determined for predicting graduation from Camp Peary. The multiple correlation was .68. The three variables which received the largest regression weights were Retardation Index, Literacy Test X-1, and Total Time in Occupation. If these three were combined with optimum weights, they gave a correlation of .61.

The gains that could have been achieved if the Retardation Index had been used as a screen to weed out unpromising candidates for Camp Peary are shown in Table 35. Clearly, a quarter of the Camp Peary failures could have

Table 35

Elimination Rate at Camp Peary
in Relation to Retardation Index

Retardation Index	Graduates	Failures	Percent Failing
0.0 - 0.4	307	22	6.7
0.5 - 0.9	205	19	8.5
1.0 - 1.4	147	25	14.5
1.5 - 1.9	46	4	8.0
2.0 - 2.9	48	9	15.8
3.0 - 3.9	12	10	45.4
4.0 and over	8	20	71.4
Total	773	109	12.4

been screened out, using this index, with a very modest cost in subsequent graduates. Considering additional factors, the screening could presumably have been improved.

The predictor variables have been discussed up to this point in relation to whether the man completed the training program. Do these same variables have value in predicting how well the man performed in his Navy duty assignment? One of the problems involved here is determining a criterion of

satisfactory performance. The marks for proficiency in rate are intended to reflect the man's efficiency in his duty assignment, but the way in which they were assigned and the number of cases who had no marks available made these marks seem unsuitable as a criterion. In the present study, two criteria of performance were used in statistical analyses. One of these was the number of promotions that each man got. It is reasonable to believe that those men who get the most promotions in any given length of time are the ones who are, on the average, most proficient. The second score was a composite score taking into consideration various factors which may be related to proficiency in the Navy. The method of awarding points has been described on page 35 of the report. These criterion scores ranged in value from one through nine with nine representing superior performance. The median criterion score for the illiterates was a little over five so the men who scored above five were considered to be the successful group, and those scoring five or below, the unsuccessful group.

Using the number of promotions as a criterion of success and Camp Peary graduates only as the sample, the only two categorical variables which showed a significant relationship were marital status and dependents at induction. These were significant at the .001 level. Single men with no dependents obtained more promotions than did married men or men with one or more dependents. These facts are summarized in Tables 36 and 37.

Table 36

Summary of Analysis of Relationships of
Non-Continuous Variables to Promotions
(Peary Graduates Only)

Factor Analyzed	Level of Significance*
Citizenship	n.s.
Language spoken	n.s.
Marital status	.001
Dependents at induction	.001
Sign own name	n.s.
Training other than public school	n.s.
Hobbies	n.s.
Principal occupation code	n.s.
Employer code	n.s.
Civilian court record	n.s.

* n.s. signifies not significant at .05 level.

Table 37

Specific Items of Background Associated with
Having Zero or One Promotions
(Peary Graduates Only)

Item	No. Giving Response	No. with 0 or 1 Promotions	% with 0 or 1 Promotions
Married	279	123	44.1
Had dependents at induction	517	221	42.7
Total group	893	322	36.1

If a composite criterion score of over five is used as the indication of success and the Peary graduates as the sample, the only categorical variable which was significant was dependents at induction, and this was significant at the .01 level. Men with no dependents obtained better over-all criterion scores than did men who had dependents.

The intercorrelations of the continuous predictor variables with the criterion variables for the total group are shown in Table 38. Although the total number of men in the illiterate group was 1026, the N's for the correlations varied a good deal due to the fact that certain information was missing in a number of cases.

Except for the number of days hospitalized and the number of days lost from duty due to misconduct, the intercorrelations among the criterion variables tend to be rather high. For example, the number of promotions that a man gets correlates .570 with the longest tour of duty, .453 with average tour of duty, .662 with average proficiency in rate, .529 with length of time spent overseas, and .837 with the composite criterion score.

For the total group the background variables which have the highest correlation with promotions and the composite criterion score are highest school grade completed, the index of retardation, the amount of progress in civilian occupation (Work Index II), degree of independence from family in civilian occupation (Work Index I), and the scores on the Qualification Test and Non-Verbal Classification Test. The two education variables and scores on the Qualification and Non-Verbal Classification Tests were highly intercorrelated, but the two work indices had relatively low correlations with these variables.

Using promotions as a criterion measure, and variables 1- 11, 13 and 16 as predictors, a multiple correlation was computed between predictor variables and criterion. The multiple correlation was .35. In this prediction,

Table 38

Intercorrelations of Continuous Predictor Variables with the Criterion Variables
for Total Sample of Navy Illiterates

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1 Rural Index, Monroe County	-																										
2 Pop. Home County	730	-																									
3 Age at induction	334	016	-																								
4 School grade completed	328	214	191	-																							
5 Retardation Index	128	058	104	600	-																						
6 Age left school	217	134	185	497	254	-																					
7 Specialized training	083	125	056	107	060	034	-																				
8 Total time in occ.	173	138	546	299	094	305	000	-																			
9 Work Index I	217	253	270	070	081	037	138	051	-																		
10 Work Index II	087	083	386	022	095	071	119	084	838	-																	
11 Qualification Test	113	043	035	523	309	313	055	120	079	060	-																
12 Group Target Test	037	068	055	017	015	039	024	008	050	018	017	-															
13 Non-Verbal Raw Score	223	112	129	300	185	118	110	182	120	052	294	264	-														
14 G. C. T.	161	066	072	359	290	240	052	091	095	081	386	057	305	-													
15 M. A. T.	113	002	102	182	173	106	019	066	058	020	192	185	363	532	-												
16 Literacy X-1 Test	187	082	056	488	351	292	003	117	030	039	817	033	280	374	150	-											
17 Achievement Average	105	056	096	440	357	259	050	095	045	087	484	032	298	387	248	801	-										
18 S. T. U. Literacy Test	017	019	010	482	304	272	045	071	025	004	826	039	152	342	119	763	530	-									
19 Max. time at duty station	071	012	178	179	226	059	045	089	018	030	184	020	179	212	168	185	410	145	-								
20 Av. time duty station	045	009	120	137	202	028	041	056	044	059	139	013	153	187	135	150	342	141	896	-							
21 Av. proficiency in rate	057	008	102	180	227	053	050	056	034	104	143	023	190	249	158	194	427	149	715	604	-						
22 Promotions	083	007	103	213	233	084	078	082	108	152	163	154	194	245	177	163	397	119	570	453	662	-					
23 Days absent from duty	027	014	048	027	048	002	018	049	018	018	038	048	009	022	018	025	062	008	073	081	082	121	-				
24 Overseas duty	052	025	046	092	111	073	085	040	038	083	071	042	085	155	128	030	207	022	191	058	377	529	089	-			
25 Sea duty	025	027	194	056	115	021	071	055	128	108	049	041	051	027	017	128	185	081	505	488	333	179	083	383	-		
26 Days hospitalized	050	180	025	015	046	028	005	038	009	011	033	010	018	039	014	012	048	015	175	147	165	123	108	136	059	-	
27 Composite Criterion Score	040	023	038	151	177	048	073	007	089	141	138	043	155	207	154	128	349	119	584	471	707	837	341	489	157	162	-

variables receiving relatively heavy weights were age (-.17), retardation index (-.12), index of promotion in civilian activity (.19), and Non-Verbal Classification Test (.13). Since this total group contained those who failed to complete training at Camp Peary, and since by definition these received no promotions, the promotion criterion is contaminated here with the training criterion.

Table 39 shows the correlations of background variables with promotions

Table 39

Correlations with Promotions and Composite Criterion Score
(Peary Graduates)

Predictor	Promotions	Composite Score
Quality of rural living index for home county	.070	.014
Density of population, home county	-.018	-.042
Age	-.077	.001
School grade completed	.127	.053
Index of school retardation	-.124	-.098
Time with last employer	.061	-.034
Wage before entering service	-.014	-.001
Work Index - socialization	.089	.071
Work Index - advancement	.108	.106
Qualification Test	.109	.077
Non-Verbal Classification Test	.138	.088
Literacy Test X-1	.053	.023
Special training unit literacy test	.048	.050
Group Target Test	.05	
General Classification Test	-.029	.051
Mechanical Aptitude Test	.089	.070
Achievement average STU	.098	.074

and with the composite criterion scores for the group of men who completed training at Camp Peary and continued to some further Navy assignment. Again the variables which have the highest correlation with success in the Navy are school grade completed, index of school retardation, advancement in civilian occupation, and scores on the Qualification and Non-Verbal Classification Tests.

For the graduate group, intercorrelations were available for only the variables which appeared in almost every record. These are given in Table 40. Based upon these correlations, a multiple correlation was computed against the promotion criterion. The multiple was .21.

Table 40

Intercorrelations of Variables for Peary Graduates

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Rural Index, Home County	-															
2. Pop. Home County	<u>734</u>	-														
3. Age at induction	<u>042</u>	<u>033</u>	-													
4. School grade completed	<u>343</u>	<u>219</u>	<u>189</u>	-												
5. Qualifications Test	<u>097</u>	<u>014</u>	<u>049</u>	<u>493</u>	-											
6. Non-Verbal Raw Score	<u>229</u>	<u>122</u>	<u>105</u>	<u>263</u>	<u>242</u>	-										
7. Literacy X-1 Test	<u>168</u>	<u>088</u>	<u>054</u>	<u>419</u>	<u>540</u>	<u>360</u>	-									
8. STU Literacy Test	<u>012</u>	<u>027</u>	<u>004</u>	<u>409</u>	<u>577</u>	<u>219</u>	<u>704</u>	-								
9. Max. time at duty sta.	<u>054</u>	<u>010</u>	<u>189</u>	<u>079</u>	<u>115</u>	<u>095</u>	<u>076</u>	<u>086</u>	-							
10. Av. time at duty sta.	<u>023</u>	<u>006</u>	<u>101</u>	<u>040</u>	<u>088</u>	<u>064</u>	<u>044</u>	<u>084</u>	<u>843</u>	-						
11. Promotions	<u>070</u>	<u>018</u>	<u>077</u>	<u>127</u>	<u>109</u>	<u>138</u>	<u>053</u>	<u>048</u>	<u>239</u>	<u>140</u>	-					
12. Days absent from duty	<u>029</u>	<u>020</u>	<u>031</u>	<u>007</u>	<u>045</u>	<u>002</u>	<u>009</u>	<u>014</u>	<u>184</u>	<u>162</u>	<u>258</u>	-				
13. Overseas duty	<u>041</u>	<u>031</u>	<u>024</u>	<u>036</u>	<u>029</u>	<u>063</u>	<u>029</u>	<u>018</u>	<u>044</u>	<u>165</u>	<u>444</u>	<u>127</u>	-			
14. Sea duty	<u>049</u>	<u>034</u>	<u>194</u>	<u>013</u>	<u>016</u>	<u>001</u>	<u>079</u>	<u>050</u>	<u>386</u>	<u>373</u>	<u>066</u>	<u>038</u>	<u>563</u>	-		
15. Days hospitalized	<u>066</u>	<u>002</u>	<u>041</u>	<u>025</u>	<u>062</u>	<u>037</u>	<u>031</u>	<u>049</u>	<u>309</u>	<u>232</u>	<u>239</u>	<u>077</u>	<u>175</u>	<u>090</u>	-	
16. Composite Criterion Score	<u>014</u>	<u>042</u>	<u>001</u>	<u>053</u>	<u>077</u>	<u>088</u>	<u>023</u>	<u>050</u>	<u>253</u>	<u>187</u>	<u>739</u>	<u>512</u>	<u>364</u>	<u>083</u>	<u>267</u>	-

In general summary, it seems that selected indicators of educational and occupational progress, combined with certain non-verbal test scores, gave very substantial help in estimating whether an illiterate was likely to complete the basic literacy and indoctrination program. Prediction of later success in the Navy was rather limited, undoubtedly due in part to limitations in the adequacy of the indicators of Navy success which were available to serve as a criterion. However, those variables which predicted successful completion of training tended also to be related to progress after training. If data on groups currently being trained support the findings of this study, it appears that these factors could be used to advantage in screening illiterates, insofar as screening is administratively possible.

CHAPTER 5

EVALUATION OF THE FINDINGS

The procedures and results from the project have now been presented. What general evaluation should be made of them? What significance do the results have for our understanding of the role of the illiterate in a military organization, and more particularly in the Navy?

Limitations of data and methodology.

In the first place, certain limitations of the present study should be noted. These arise in part from the basic data which were available for analysis, and in part from certain decisions which were made in the process of collecting and analyzing these data.

The most basic limitation stems from the fact that the present study had to depend exclusively upon records. These records were five or more years old, gathered for a variety of other purposes, and subject to all the losses and distortions which characterize a large-scale record system of an organization engaged in active combat and manned by a changing and relatively inexperienced personnel. Many entries were lacking; others were incomplete; others were inconsistent. No new information could be gathered to overcome these deficiencies. The amount of trust to place in any entry was always a matter of question. For a number of specific items that were studied, problems which came up have been discussed in the body of the text.

The test records presented some particular problems. Most of the special tests used with the illiterates were available in only rare cases for the other groups. On the other hand, the usual GCT and MAT were administered to the illiterates only after they had completed most of their period of training at Camp Peary. Consequently, these could not be thought of as predictor variables available at entrance to the Navy, and could not meaningfully be compared with the scores for the other groups.

The problem of defining a control group with which to compare the illiterates was a particularly puzzling one. On the one hand, one wished a group which was comparable to the illiterates in time of entry into the Navy, in order to equate opportunities for promotion, etc., and in background characteristics, so that differences would not arise between the groups because of essentially irrelevant uncontrolled background factors. On the other hand, one wished a control group that was generally representative of men entering the Navy, so that the comparison would be with a representative group rather than one which was in one or more ways atypical.

The solution of defining a control group by picking a nearby serial number for each illiterate represented a compromise between these two objectives. It resulted in each instance in a control case who (1) was also an

inductee when the illiterate was, (2) was inducted at the same time as his paired illiterate, and (3) came from the same general locality as his paired illiterate. As Chapter 2 shows, the resulting control group matches the illiterates with varying degrees of closeness in different respects. It is also probably true that it deviates by varying amounts from the total population of men entering the Navy during the time covered by the study. There is no completely satisfactory resolution of this problem, and the control group selected still seems as good a compromise as could be reached.

The illiterate, control, and marginal groups differed appreciably in age and marital status. The men in the control group were older and more frequently married. The men in the marginal group were predominantly young and single. This third marginal group differed further in the fact that a large number of its members were volunteers. These age and marital status differences must be borne in mind in all other group comparisons - particularly those involving disciplinary actions, medical surveys, and the like. Thus, the frequent disciplinary actions in the marginal group may be a function in part of their general youth and immaturity.

Interpretation of group differences.

Comparing the groups as a whole, there seems to be no question that with respect to most of the items which indicated judgments of the quality of a man's service in the Navy, the illiterate group did less well than the control group, with the marginal group falling in between but nearer the illiterate group. The illiterates had fewer promotions, poorer proficiency ratings, and more disciplinary actions. In retrospect, it seems that it could hardly have been otherwise. Specialized school training was a prerequisite for most of the specialized rates, and promotions followed this specialized training - in some cases almost automatically. Minimum standards on GCT were set for most of the specialized schools, thus effectively ruling the illiterates out of these channels for advancement. Studies of the civilian world have shown that those with marginal ability as shown by intelligence tests have a greater likelihood of getting into various sorts of trouble, though it has never been entirely clear whether this is due to a greater propensity to misbehave or to less skill in avoiding being caught. In the present instance also, the difference in disciplinary actions may represent inability to cover up misbehavior or to present convincing extenuating circumstances as much as actual greater propensity to misbehave. Be that as it may, the Navy has judged these men, in the appraisals which it has recorded for them, to be less satisfactory than their normal peers.

But at the same time, a larger number of them were, from every evidence which the records present, completely acceptable in their Navy duty. They had no disciplinary actions, no undue hospitalizations, no venereal disease. Their proficiency ratings averaged 3.5 or better, and they made some progress in their organization. In certain settings, such as the CBs, they adjusted notably well. In at least some cases and at least some settings, these men have a contribution to make. The problem is: Which men? How many? In what

settings? At what cost? The present study offers some suggestions with respect to which men and which settings. Some comments on the selection of men will be presented in the next section. As indicated above, the setting in which the men were most generally successful was overseas duty with the CBs. Problems of the numbers of illiterates usable in any type of military operation and the cost of incorporating them into the organization are not ones upon which the present study throws any light.

Prediction of success of illiterates in the Navy.

Since a substantial number of the illiterates appear to make a satisfactory adjustment to Navy life and to perform adequately in their Navy assignments, the constructive approach to the problem of the illiterate would seem to lie in identifying those characteristics of the illiterate which are predictive of this adjustment. This is particularly true when the Navy is depending upon volunteers for its personnel, so that some selection among individuals with low AFQT scores may be possible. Thus, though the Navy is required to take a specified proportion of Group IV individuals, it may be appropriate to consider selecting from among the Group IV applicants those who seem most likely to make a useful contribution in the Navy.

The analyses in Chapter 4 indicate that within the World War II illiterate group, there were a number of facts known at the time of a man's induction which had substantial value in predicting whether he would survive through and successfully complete the training program at Camp Peary. These were facts relating to past educational progress, civilian work experience, and present level of ability on both literacy tests and non-verbal aptitude tests. In view of the meagerness of the information on work history, and the questionable accuracy of the reports the man gave on his educational experience, it is surprising that the relationships were as high as they turned out to be. If more adequate information had been obtained in these areas, it is quite possible that the relationships would have been still higher.

The prediction of success in Navy duty assignment was much less successful. There are a number of reasons for this. The most unpromising individuals had already been eliminated in training, so there was less difference among those remaining. The criterion measures of success were themselves none too good. Success, by such criteria as promotions, proficiency ratings, etc., depends upon many situational factors quite unrelated to the characteristics of the man. But though relationships were lower, the same variables were still the most effective predictors. Thus, men selected so as to be likely to complete the training program satisfactorily would have had a more than average chance of being successful in their subsequent Navy duty.

The findings from this study on the prediction of success in the literacy training program and in subsequent Navy assignments suggest the desirability of two lines of action. In the first place, research studies could profitably be made of groups currently going through literacy training, to determine whether the predictors found to be effective in this study still hold up.

Working with current groups, it might be possible to get more complete and accurate information on educational and occupational histories than were available in the records of the present study, and get a more definitive picture of the prediction which is possible with information of these types. In the second place, consideration should be given to using information about educational and occupational history of the sort which appeared promising in this study in the selective recruiting of Group IV men. It is possible that there are administrative procedures which could be introduced rather simply, and which would select a more effective group from among the marginal volunteers.

APPENDICES

Code No. _____

Name _____ Serial No. _____

NAVY ILLITERATES PROJECT

Part A: SERVICE JACKET DATA

Part B: NAVY MEDICAL RECORD DATA

October 1951
Teachers College
Columbia University
New York 27, New York

Part A: Service Jacket Record

I. Identification Material

1. Name _____ 2. SN _____
3. Home Address _____
- inducted)
4. Date enlisted) _____ 5. Place ent. serv. _____
6. Prior service in Armed Forces _____
- _____
7. Citizen Y ___ N ___ 8. Birthplace _____ 9. Birthdate _____
10. Foreign Language spoken _____ 11. English speaking Y ___ N ___
- Marital Status (at ind.) Dependents
12. S ___ M ___ D ___ W ___ Sep. _____ 13. (at induction) F ___ M ___ W ___ C ___ Sib ___ Other _____
- (at separation) F ___ M ___ W ___ C ___ Sib ___ Other _____
14. Sign own name Y ___ N ___

II. Family Background

1. Birthplace of Father _____ Mother _____
2. No. of siblings _____ Older _____ Younger _____ Rank _____
3. Parents: Living _____ Dead _____ Divorced _____ Separated _____
4. Has any member of the family been committed to an institution? Yes _____ No _____
- _____
- _____

III. Educational History

1. SGC _____ 2. No. yrs. attended _____ 3. Year left school _____
4. Location of school _____ 5. Age left school _____
6. Specialized training _____
- _____
- _____

IV. Hobbies and Leisure Time Activities

V. Occupational History

Principal pre-service occupation

1. Title _____ 2. Code _____ 3. Total time in occupation _____
 4. Employer _____ 5. Time with this employer _____
 6. Business _____ 7. Wage _____
 8. Duties _____

Other jobs or occupations

Title

Length of Time

VI. Civilian Court or Criminal Record

1. Ever been arrested? Yes _____ No _____ If so, charge: _____

VII. Test Scores

Name of Test	Form	Score	Date Given	Remarks
Qualifications Test				
Group Target Test				
IE or NIE (Specify)				
Non-Verbal Standard Score				
GCT				
MAT				
Non-Verbal Raw Score				
Literacy X-1				
Achievement Average				
STU Literacy Test				

IX. Ratings and Marks

[illegible]

X. Promotions

[illegible]

XIV. Medical

Summary of defects or physical disabilities noted at induction.

XV. Total Length of Service in Navy

From _____ To _____ Total time _____
Yrs. mos. days

U.S. Service _____ Overseas _____ Sea Duty _____
Yrs. mos. days Yrs. mos. days Yrs. mos. days

XVI. Separation from Navy

Type of discharge _____ Date _____

Reason for separation _____

Recommended for reenlistment? Yes _____ No _____ for GCM? Yes _____ No _____

Rating held when discharged _____

COMMENTS

Part B: Medical Record Data

I. Vision

Right _____/20

Corrected to _____/20

Left _____/20

Corrected to _____/20

Spectacles provided by Navy? Yes _____ No _____

II. Hearing

Tested by _____

Right _____/15

Left _____/15

III. Physical Defects at Time of Induction or Waivers (NRS Medical)

IV. Physical Defects at Time of Separation from Navy

V. Veterans Administration Requests for Information Pending Claims

Claim No. _____ Type of Claim _____

VIII. Medical Surveys

1. Reason for referral: _____

2. Pertinent personal background: _____

3. Psychologist's report: _____

4. Psychiatric report: _____

5. Company commander's report: _____

6. Recommendation: _____

7. Disposition: _____

APPENDIX B

IBM CODE FOR ILLITERATES DATA

Cols. 1-3 Job Number

Cols. 4-7 Project case number
 0001 to 1999 - Camp Peary group
 2001 to 3999 - Control group
 4001 to 5999 - Marginal group

Cols. 8-10 Rural level of living index for home county
 Record from County Data Book

Cols. 11-13 Population per square mile - home county
 Record from County Data Book - Round to nearest whole number.
 Note: For counties with populations per square mile of
 1,000 or more, code as 999.

Col. 14 Age Code

0	17-18 years	6	29-30 years
1	19-20 years	7	31-32 years
2	21-22 years	8	33-34 years
3	23-24 years	9	35 years and over
4	25-26 years	Y	Underage 15 or 16
5	27-28 years		

Col. 15 Citizenship and birthplace

0	American born
1	Born in Latin America
2	Born in Europe, non-English speaking country
3	Born in Asia
4	Born in Canada
5	Born in England, Ireland, Scotland, or other foreign English speaking country
9	Other
X	Information not available

Col. 16 Languages spoken

0	English speaking, no foreign language spoken
1	English speaking, foreign language spoken other than Spanish, French, Italian or Polish
2	Non-English speaking, other than Spanish
3	English speaking, Spanish spoken
4	English speaking, French spoken
5	English speaking, Italian spoken

Languages spoken (cont.)

- 6 English speaking, Polish spoken
- 7 Non-English Speaking, Spanish spoken
- 8 English speaking - two other languages spoken
- X Information not available

Col. 17 Marital Status Code

- | | | | |
|---|----------|---|---------------------------|
| 0 | Single | 3 | Widowed |
| 1 | Married | 4 | Separated |
| 2 | Divorced | X | Information not available |

Col. 18 Dependents at induction

- 0 None
- 1 Wife only
- 2 Child or children only
- 3 Wife and child or children
- 4 Parent or parents only
- 5 Sibling or siblings only
- 6 Parent(s) and sibling(s)
- 7 Parent(s) and/or sibling(s) and wife and/or child(ren)
(wife and siblings)
- 9 Other
- X Information not available

Col. 19 Dependents at separation
Code as above

Col. 20 Sign own name

- 0 Yes
- 1 No

Col. 21 Parental birthplace code

- 0 Both American born
- 1 One born in Latin America
- 2 Both born in Latin America
- 3 One born in Europe, other than Great Britain
- 4 Both born in Europe, other than Great Britain
- 5 One born elsewhere
- 6 Both born elsewhere
- 7 One born in foreign country, English speaking
- 8 Both born in foreign country, English speaking
- 9 Other combination
- X Information not available

Col. 22 Number of siblings

- Record number directly (9=9 or more)
- X Information not available

Col. 23

Present status of parents

- 0 Both living, no separation or divorce
- 1 One living, no separation or divorce
- 2 Both dead, no separation or divorce
- 3 Both living, separated or divorced
- 4 One living, separated or divorced
- 5 Both dead, separated or divorced
- X No information available

Col. 24

Member of family institutionalized

- 0 None
- 1 One, in institution for psychotics, epileptics, or feeble-minded.
- 2 One, in jail or prison
- 3 One, in sanitarium, etc.
- 4 One, type of institution not specified
- 5 Two or more, in institution for psychotics, epileptics, or feeble-minded
- 6 Two or more, one in institution for psychotics, epileptics, or feeble-minded
- 7 Two or more, in jail or prison
- 8 Two or more, one in jail or prison
- 9 Two or more, other combination
- X Information not available

Col. 25-26

School Grade Completed

Record directly

- | | |
|-----------|-------------------------------|
| 00 - none | 07 - 7 |
| 01 - 1 | 08 - 8 |
| 02 - 2 | 09 - 9 |
| 03 - 3 | 10 - 10 |
| 04 - 4 | 11 - 11 |
| 05 - 5 | 12 - 12 or more |
| 06 - 6 | X - Information not available |

Col. 27-28

Number of years attended

Record as above

Col. 29-30

Retardation Index

Add 6 to highest school grade completed. Subtract answer from age left school. Divide remainder by school grade completed. In cases where man has attended school but has not completed any school grade, code 99.

XX - Information not available

YY - Never attended school

Col. 31

Age left school

- 0 - never attended

Age left school (cont.)

1 - 10 or below	6 - 15
2 - 11	7 - 16
3 - 12	8 - 17
4 - 13	9 - 18 or over
5 - 14	X - Information not available

Col. 32

Specialized training

0 None
1 Less than 3 months or less than 201 hours
2 3 months but less than 6 months, or from 201 to 400 hours
3 6 months but less than 1 year
4 1 year but less than 1 1/2 years
5 1 1/2 years but less than 2 years
6 2 years but less than 3 years
7 3 years but less than 4 years
8 4 years but less than 5 years
9 5 years or more
X Some duration, unspecified
Y Information not available

Col. 33

Type of additional training

0 None	5 C.C.C. and Defense
1 C.C.C.	6 Business College
2 Vocational school	7 Other
3 Defense plant	8 C.C.C. and other not specified
4 N.Y.A.	9 Not specified

Col. 34

Hobbies and leisure time activities

0 none
1 Fishing, hunting, and/or sports only
2 One or more mechanical or constructive, in addition
3 One or more musical or artistic, in addition
4 Both constructive and artistic, in addition
5 Other types
6 Other types, as well as constructive or artistic, in addition
X Information not available

Col. 35

Principal occupation code

Record first digit of D.O.T. Code
X Information not available
Y None

Col. 36

Total time in occupation

0 No full-time work experience
1 Up to and including 1 year
2 Over 1 year and including 2 years

Total time in occupation (cont.)

- 3 Over 2 years and including 3 years
- 4 Over 3 years and including 4 years
- 5 Over 4 years and including 5 years
- 6 Over 5 years and including 6 years
- 7 Over 6 years and including 7 years
- 8 Over 7 years and including 8 years
- 9 Over 8 years
- X Information not available

Col. 37

Employer code

- 0 Never employed
- 1 Locally employed - by relative
- 2 Locally employed - by unrelated individual
- 3 Locally employed - by company
- 4 Employed away from home address - unrelated individual
- 5 Employed away from home address - company
- 6 Self-employed
- X Information not available

Col. 38

Time with last employer

- | | |
|---------------------------|-----------------------------|
| 0 Never employed | 6 Over 5 years to 6 years |
| 1 Up to 1 year | 7 Over 6 years to 7 years |
| 2 Over 1 year to 2 years | 8 Over 7 years to 8 years |
| 3 Over 2 years to 3 years | 9 Over 8 years |
| 4 Over 3 years to 4 years | X Information not available |
| 5 Over 4 years to 5 years | |

Col. 39

Wage

- 0 No cash pay specified (family labor)
- 1 Up to and including \$10.00 per week
- 2 \$10.01 - 20.00
- 3 \$20.01 - 30.00
- 4 \$30.01 - 40.00
- 5 \$40.01 - 50.00
- 6 \$50.01 - 60.00
- 7 \$60.01 - 70.00
- 8 \$70.01 - 80.00
- 9 Over \$80.00
- X Unreliable or missing
- Y Never worked

Col. 40-41

Composite work experience index

Col. 42

Civilian court or criminal record

- 0 Never arrested
- 1 Traffic violation only

Civilian court or criminal record (cont.)

- 2 Drunkenness and/or disorderly conduct
- 3 Traffic and drunkenness
- 4 Moonshining
- 5 Fighting
- 6 Theft
- 8 Not specified
- 9 Others

Col. 43-44 Qualification test

Record score directly - punch 2 digits

XX Information not available

Col. 45-46 Group Target test

Record directly - punch 2 digits

XX Information not available

Col. 47-48 Non-Verbal Raw Score

Record score directly - punch 2 digits

XX Information not available

Col. 49-50 GCT

Record score directly - punch 2 digits

XX Information not available

Col. 51-52 MAT

Record score directly

XX Information not available

Col. 53-54 Literacy X-1

Record score directly

XX Information not available

Col. 55-56 Achievement Average

Record score directly

XX Information not available

Col. 57-59 STU Literacy test

Record score directly - three digits

XXX Information not available

Col. 60 Primary Navy Duty Assignment (at least 3 months)

- 0 None other than training
- 1 Sea Bee - U.S. permanent base
- 2 U.S. permanent party other than C.B.
- 3 Sea Bee - overseas duty
- 4 Overseas base personnel - other than C.B.

Primary Navy Duty Assignment (at least 3 months) (cont.)

- 5 Sea duty - auxiliary ship or armed guard
- 6 Sea duty - Landing craft
- 7 Sea duty - ship of line
- 8 Sea duty - mine sweepers, minelayers, and patrol craft
- 9 Sea duty - district craft and miscellaneous vessels

Col. 61 Secondary Navy Duty Assignment (at least 3 months)
Code as above

Col. 62 Greatest length of time at any duty station (excluding training)

- | | |
|------------------|----------------------------|
| 0 Under 30 days | 6 180 - 209 days |
| 1 30 - 59 days | 7 210 - 239 days |
| 2 60 - 89 days | 8 240 - 269 days |
| 3 90 - 119 days | 9 270 days or more |
| 4 120 - 149 days | Y None other than training |
| 5 150 - 179 days | |

Col. 63 Average length of time at duty station
Code as in Col. 62

Col. 64-65 Average proficiency in rate
Record directly to one decimal place
XX Not available - no ratings

Col. 66 Promotions
Record final rank

0 Apprentice Seaman	3 Petty officer 3C
1 S2C or F2C	4 Petty officer 2C
2 S1C or F1C	5 Petty officer 1C
	6 Chief petty officer

Col. 67 Days absent from duty

0 None	5 7 - 10 days
1 Less than 24 hours	6 10 - 14 days
2 24 - 71 hours	7 14 - 21 days
3 3 - 5 days	8 21 - 30 days
4 5 - 7 days	9 30 days or more

Col. 68-69 Disciplinary Action
00 No disciplinary action
For men who have had disciplinary actions, a two digit score is obtained as follows:

<u>Type of Action</u>	<u>Weight</u>	<u>Multiply by:</u>
Captain's Mast	1	1, 2, or 3 (if he has had 3 or more Masts)
Deck Court	4	1 or 2 (if he has had 2 or more Deck Courts)

Disciplinary Action (cont.)

<u>Type of Action</u>	<u>Weight</u>	<u>Multiply by:</u>
Summary Court	12	1 or 2 (if he has had 2 or more Summary Courts)
General Court	36	1 (if he has had 1 or more General Courts)

The total score is obtained by adding together all of the disciplinary actions. A chart is provided as an aid in determining the disciplinary score (see below).

Cols. 68-69

Disciplinary Actions Code

No. of Captains Masts	No General Courts Martial								
	No Summary Court Martial			One Summary Court Martial			Two or More Summary Courts Martial		
	Deck Courts			Deck Courts			Deck Courts		
	0	1	2 or more	0	1	2 or more	0	1	2 or more
0	00	04	08	12	16	20	24	28	32
1	01	05	09	13	17	21	25	29	33
2	02	06	10	14	18	22	26	30	34
3 or more	03	07	11	15	19	23	27	31	35

One or More General Courts Martial

No. of Captains Masts	No Summary Court Martial			One Summary Court Martial			Two or More Summary Courts Martial		
	Deck Courts			Deck Courts			Deck Courts		
	Deck Courts			Deck Courts			Deck Courts		
	0	1	2 or more	0	1	2 or more	0	1	2 or more
0	36	40	44	48	52	56	60	64	68
1	37	41	45	49	53	57	61	65	69
2	38	42	46	50	54	58	62	66	70
3 or more	39	43	47	51	55	59	63	67	71

Col. 70

Nature of offense

0	None	5	Loss of ID card
1	AOL only	6	Out of uniform
2	AWOL only	7	AWOL and drunkenness
3	Drunkenness	8	AOL and/or AWOL and/or other
4	Theft	9	Other

Col. 71	<u>Overseas Duty</u>		
	0 None	5	120 - 149 days
	1 Less than 30 days	6	150 - 179 days
	2 30 - 59 days	7	180 - 209 days
	3 60 - 89 days	8	210 - 239 days
	4 90 - 119 days	9	240 days and over
Col. 72	<u>Sea Duty</u>		
	Record as in Col. 71		
Col. 73	<u>Character of Separation</u>		
	0 Honorable Discharge, points or COG		
	1 Honorable Discharge, dependency		
	2 Honorable Discharge, medical survey		
	3 Under Honorable Conditions, physical disability		
	4 Under Honorable Conditions, unsuitability		
	5 Under Honorable Conditions, low conduct ratings and/or low proficiency ratings		
	6 Enlistment terminated - death		
	7 Under Honorable Conditions - underage		
	8 Bad Conduct Discharge		
	9 Dishonorable Discharge		
Col. 74	<u>Physical Defect at time of induction</u>		
	0 None	5	Teeth or gums
	1 Vision	6	Vision and flat feet
	2 Hearing	7	Vision and teeth
	3 Flat feet	8	Vision and others
	4 Throat condition	9	Other
Col. 75	<u>V.A. Claim</u>		
	0 None		
	1 Disability		
	2 Dental		
	3 Disability and dental		
	4 Discharge to VA hospital for psychotics		
	5 Discharge to VA hospital - other than psychotic		
	8 Other		

Col. 76

Hospitalization

0	None	5	Infectious and accident
1	One infectious	6	Infectious and other
2	Two or more infectious	7	Accident and other
3	One accident	8	One other
4	Two or more accidents	9	Two or more other
		Y	Injuries due to combat

Col. 77

Days Hospitalized

0	None	5	41 - 50 days
1	1 - 10 days	6	51 - 60 days
2	11 - 20 days	7	61 - 70 days
3	21 - 30 days	8	71 - 80 days
4	31 - 40 days	9	81 days and over

Col. 78

Venereal disease

No. of infections coded directly

Col. 79

Medical Survey

- 0 None
- 1 Inadequate personality, psychogenic defect
- 2 Inability to learn or mental deficiency
- 3 Accident or injury, other than in combat
- 4 Physical disability, other than in combat
- 5 Injury or wounds received in combat
- 6 Eneuresis
- 7 Inability to learn and eneuresis
- 8 Inadequate personality and eneuresis
- 9 Physical disability - discharge to limited duty

Col. 80

Composite Criterion Score

- One point-for each promotion
- One point-average proficiency in Rate 3.5 or over
- One point-no disciplinary action
- One point-honorable discharge
- One point-no V.D. record
- One point-no V.A. disability claim

APPENDIX C

INDICES BASED ON WORK HISTORY

Factor I - Vocational Socialization

Definition of Concept

The extent to which the job experiences of the individual have demanded that he adjust to others in the work situation. Contact with co-workers and with the public is considered.

Level 1

Job experience which has not required the individual to make contacts out of the family for vocational purposes.

Level 2

Job experience which required the individual to adjust to an employer other than a relative but which did not provide the opportunity to contact others regularly on the job. (Contact is meant literally not "cooperation".)

Level 3

Job experience where contact with co-worker is casual, not required to perform the majority of duties, and where opportunity for contact with numbers of co-workers is definitely limited by the relatively small size of the organization. Contact with the public is not a part of job duties and is not afforded for the most part. Majority of contacts are probably with owner, employer, supervisor.

Level 4

Job experience where the individual contacts with others are not limited but are fairly well defined and regulated either by the nature of the job duties or by the customs of the society. The usual cooperation or co-worker contact is not present.

Level 5

Job experience where there is daily contact with co-workers in the organization, or with the public. The contact is not important to the accomplishment of the job duties, but the opportunity for contact is there.

Level 6

Job experience where there is considerable contact with co-workers and/or the public and where this contact is an important if not critical part of the job duties.

Level 7

Job experiences where duties have required a comparatively high level of cooperation and communication between those working together in an industrial situation. Contact here is a part of the job. It is necessary and might be considered critical.

Factor II - Vocational Progress

Definition of Concept

The extent to which the job experiences of the individual reflect progress vocationally. Included here are both vertical and horizontal mobility. The upper levels stressing the former, the lower the latter.

Level 1

Job experience which indicates a failure in attempts to progress vocationally. That is where individual has made an attempt to perform at a different job and apparently been forced back to previous one. Or where individual has had excessive number of jobs. (More than three per year)*

* any one year - not average over period since leaving school.

Level 2

Job experience which does not reflect a failure on the part of the individual as in level 1 but which does not indicate progress either vertically or horizontally. It is simply for persons with job experience limited to one job with no indication that progress was made prior to leaving it to enter Service.

Level 3

Job experience which indicates ability to change jobs and make a satisfactory adjustment. Job may appear more desirable to individual but not clearly higher as defined by DOT and/or wages.

Level 4

Job experience which reflects definite ability to seek, find, and retain a job which is of a higher level (financially or DOT-wise) than first job.

Level 5

Job experience which reflects the individual's ability to move from short term jobs to better full time jobs for longer periods of time. Progress and variation are important here. (Variation should not be to the degree to warrant including the individual in level 1).

Level 6

Job experience which reflects definite progressive vertical mobility in several jobs.

Level 7

Job experience which indicates progress from job to job plus progress with an employer which is recognized by the giving of supervisory responsibility.